

TWENTY-FIRST

# ANNUAL REPORT

ON THE

CONDITION OF THE COMBINED

SANITARY DISTRICT

OF

# WEST SUSSEX,

FOR THE YEAR 1894,

BY

CHARLES KELLY, M.D., F.R.C.P.,

MEDICAL OFFICER OF HEALTH,

PROFESSOR OF HYGIENE IN KING'S COLLEGE, LONDON.



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STEYNING  
RURAL SANITARY AUTHORITY.

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pp. 1 et seq.



## RURAL SANITARY DISTRICT OF STEYNING.

Population in 1841	..	14,353	Population in 1871	..	31,473
„ 1851	..	16,867	„ 1881	..	49,019
„ 1861	..	25,003	„ 1891	..	61,757

The above figures show the population in the whole registration district during the past 50 years ; this district includes Hove, which has rapidly increased since 1851 ; Aldrington, which has developed since the last decade, and New Shoreham with a population now of about 3,400.

The following figures only relate to the rural portion of the district, but in this report Aldrington is included up to 1893 :—

	1861.	1871.	1881.	1891.
Area in Statute Acres	.. —	45,678	45,969	44,375
Number of Inhabited Houses..	2,073	2,659	3,080	3,735
„ Uninhabited „	.. 70	148	220	284
Population	.. .. 11,018	14,060	16,325	19,110
Males	.. .. 5,748	7,254	8,401	9,460
Females	.. .. 5,270	6,806	7,924	9,650

Up to the last decade the males exceeded the females, as is usual in rural districts in West Sussex ; the change noticed at the last census is entirely due to the rapid growth of Aldrington, which since September 30th, 1893, has been joined to Hove. In a short time Aldrington showed the characteristic feature of an urban population by its excessive proportion of females to males. Its rapid growth is here shown during the last three decades :—

	1861.	1871.	1881.	1891.
Inhabited Houses	.. .. 2	5	28	382
Uninhabited „	.. .. —	—	—	27
Building..	.. .. —	—	12	28
Population	.. .. 7	27	155	2,238
Males	.. .. 4	12	71	952
Females	.. .. 3	15	84	1,286

The following tables show the population in each parish over a long term of years ; and the deaths in each parish from all causes and from various causes :—

	HOUSES, 1891.			POPULATION.					
	Inhabited.	Un-inhabited.	Building.	Persons, 1861.	Persons, 1871.	Persons, 1881.	Persons, 1891.	Males, 1891.	Females, 1891.
SHOREHAM SUB-DISTRICT:—									
West Preston ..	17	1	—	—	12	96	159	36	123
Patcham ..	200	9	—	638	760	873	1,064	493	571
West Blatchington ..	19	—	—	59	49	59	95	57	38
Hangleton ..	12	—	—	51	61	79	49	25	24
Portslade ..	825	37	2	1,103	2,344	3,708	4,240	2,132	2,108
Aldrington ..	382	27	28	7	27	155	2,238	952	1,286
Southwick ..	528	25	—	1,358	2,339	2,561	2,564	1,282	1,282
Kingston ..	46	3	—	93	245	262	253	134	119
Lancing ..	223	30	—	950	1,069	1,341	1,285	724	561
Old Shoreham ..	52	1	—	282	285	248	260	131	129
Sompting ..	152	5	5	628	726	682	700	359	341
Coombes ..	14	2	—	77	92	71	86	45	41
Botolphs ..	13	4	—	54	81	94	70	37	33
STEYNING SUB-DISTRICT:—									
Bramber ..	37	3	—	119	173	186	169	83	86
Steyning ..	371	35	2	1,620	1,665	1,672	1,705	828	877
Upper Beeding ..	121	14	—	553	580	611	506	260	246
Edburton ..	65	8	—	300	301	341	359	203	156
Poynings ..	59	3	—	261	299	316	305	155	150
Woodmancote ..	64	11	—	331	320	347	314	177	137
Henfield ..	394	53	2	1,662	1,856	1,890	2,006	991	1,015
Ashurst ..	69	7	—	374	388	376	327	183	144
Shermanbury ..	72	6	—	464	388	363	356	173	183



PARISH.	DEATHS FROM ALL CAUSES IN THE YEARS								Total in Twenty Years.	1876-80.				1881-85.				1886-90.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
										Zymotic Disease.	Diphtheria.	Phtthisis.	Lung Disease.	Zymotic Disease.	Diphtheria.	Phtthisis.	Lung Disease.	Zymotic Disease.	Diphtheria.	Phtthisis.	Lung Disease.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	1875	1876-80	1881-85	1886-90	1891	1892	1893	1894																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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## BIRTHS AND BIRTH-RATE.

During the year 1894, the births of 480 children were registered ; of these 252 were male, and 228 were female.

Estimating the population in the middle of the year at 17,050, the birth-rate was equal to 28·1 per 1,000 persons living.

The births and birth-rate in the district during the past ten years have been as follows :—

Year.	Births.	Birth-rate.	Year.	Births.	Birth-rate.
1885 ..	524 ..	28·8	1890 ..	484 ..	25·7
1886 ..	513 ..	28·0	1891 ..	561 ..	29·4
1887 ..	470 ..	25·5	1892 ..	527 ..	27·2
1888 ..	507 ..	27·2	1893 ..	540 ..	28·5
1889 ..	500 ..	26·7	1894 ..	480 ..	28·1

The mean number of births is 510, and the mean birth-rate is 27·5 per 1,000 of population.

In England and Wales the birth-rate during the year was 29·6 per 1,000 persons living, a rate 2·0 per 1,000 below the mean rate in the ten years, 1884-93.

The following table shows the births and birth-rate in each locality during the past four years :—

	Births.				Birth rate.			
	1891.	1892.	1893.	1894.	1891.	1892.	1893.	1894.
Portslade Parish ..	157	155	158	154	36·8	36·2	36·0	35·2
Aldrington Parish ..	78	64	59	—	35·0	26·1	28·9	—
Southwick Parish ..	88	81	85	86	34·4	31·6	33·2	33·1
Rest of Shoreham S.D.	91	85	99	102	22·8	21·2	24·7	25·4
Steyning Parish ..	37	39	42	43	21·7	22·8	24·6	25·1
Henfield Parish ..	47	39	32	43	23·4	19·4	15·8	21·1
Rest of Steyning S.D.	63	64	65	52	26·9	27·5	28·1	22·4
Total.. ..	561	527	540	480	29·4	27·2	28·5	28·1

## GENERAL MORTALITY.

There were 196 deaths registered in this district in the year 1894, but to this number must be added the deaths of 7 persons in New Shoreham Workhouse, which is outside the district, leaving the corrected figures at 201, after deducting two deaths in Hangleton Hospital.

The 7 Workhouse deaths have been distributed among the several parishes whence each inmate came, viz. :

Southwick, 2 ; Sompting, 1 ; Old Shoreham, 1 ; Steyning, 1 ; Henfield, 2 ; in all 7.

Estimating the population in the middle of the year at 17,050, the death-rate was equal to 11·8 per 1,000 persons living.

In country places throughout England and Wales the rate of mortality in 1894 was equal to 15·6 per 1,000 of population.

There is a considerable difference in the death-rate of the two sub-districts, which is chiefly due to age and sex distribution and to occupation. In the smaller agricultural area to the north, the death-rates are the lowest, as the following figures show :—

*Shoreham Sub-district :—*

	Deaths.					Death-rate.			
	1891.	1892.	1893.	1894.		1891.	1892.	1893.	1894.
Portslade Parish ..	73	94	65	55	..	17·1	22·0	15·0	12·6
Aldrington Parish ..	49	34	38	—	..	22·0	13·9	17·8	—
Southwick Parish ..	30	50	38	38	..	11·7	19·5	14·8	14·6
Rest of Sub-district ..	64	49	52	35	..	16·0	12·2	13·0	8·5

*Steyning Sub-district :—*

Steyning Parish ..	27	26	17	20	..	15·8	15·2	9·9	11·7
Henfield Parish ..	26	24	28	28	..	13·0	11·9	13·9	13·8
Rest of Sub-district ..	36	40	32	25	..	15·4	17·2	13·9	10·8
<hr/>									
Total ..	305	317	270	201		16·0	16·4	14·3	11·8

The variations in the death-rate during the past ten years have been as follows :—

Year.	Deaths.	Death-rate.	Year.	Deaths.	Death-rate.
1885 ..	260	.. 14·3	1890 ..	281	.. 14·9
1886 ..	291	.. 15·9	1891 ..	305	.. 16·0
1887 ..	252	.. 13·7	1892 ..	317	.. 16·4
1888 ..	242	.. 13·0	1893 ..	270	.. 14·3
1889 ..	213	.. 11·4	1894 ..	201	.. 11·8

The mean number of deaths was 263 and the mean death-rate was 14·2 per 1,000 of population.

In each parish the deaths were thus distributed :—

West Preston ..	2	..	Coombes ..	..	2
Patcham ..	8	..	Botolphs ..	..	1
West Blatchington ..	1	..	Bramber ..	..	3
Hangleton ..	none	..	Steyning ..	..	20
Portslade ..	55	..	Upper Beeding ..	..	4
Southwick ..	38	..	Edburton ..	..	2
Kingston ..	3	..	Poynings ..	..	4
Lancing ..	10	..	Woodmancote ..	..	2
Old Shoreham ..	4	..	Henfield ..	..	28
Sompting ..	4	..	Ashurst ..	..	5
Shermanbury ..		..	..	..	5
Total ..		201.			



## INFANT MORTALITY.

The *infant mortality* is here given as measured by the number of deaths under one year of age to the total number of births in the year :—

			Births.	Deaths under one year.	Ratio to 1000 Births.
Portslade Parish	..	..	154	18	117
Southwick Parish	..	..	86	10	116
Rest of Shoreham Sub-district	..		102	4	39
Steyning Parish	..	..	43	3	70
Henfield Parish	..	..	43	4	93
Rest of Steyning Sub-district	..		52	1	19
Total			480	40	83

The mean annual rate in the previous six years 1888—93 was 103 per 1,000 registered births. In England and Wales the proportion of deaths under one year of age to registered births was 137 per 1,000 during the past year, the mean proportion in the preceding ten years having been 147.

## ZYMOTIC MORTALITY.

The deaths from zymotic diseases were 10 in the case of those which are notifiable, and 8 in the other class where the number of cases cannot be obtained. The rate of mortality was therefore equal to 1.1 per 1,000.

				Cases.	Deaths.
	Small-pox	..	..	1	none
	Scarlatina	..	..	42	1
	Diphtheria	..	..	22	3
	Membranous Croup	..	..	1	none
Fever.	Typhus	..	..	none	none
	Enteric	..	..	9	3
	Continued	..	..	none	none
	Relapsing	..	..	none	none
	Puerperal	..	..	1	none
	Cholera	..	..	none	none
	Erysipelas	..	..	10	3
Total				86	10

In the other class the deaths were as follows :—

Measles	..	..	..	4
Whooping Cough	..	..	..	none
Diarrhœa and Dysentery	..	..	..	3
Rheumatic Fever	..	..	..	1
Total				8



The Infectious Diseases (Notification) Act, 1889, came into force in this district on May 1st, 1891. There were 35 cases notified in 1891, 105 in 1892, 209 in 1893, and 86 in 1894.

The Infectious Disease Prevention Act, 1890, and the Public Health Acts Amendment Act, 1890, came into force here on September 29th, 1891.

The prevalence in each quarter of each notifiable disease is shown in the following table :

	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.
Small-pox .. ..	1	—	—	—	1
Scarlatina .. ..	19	12	4	7	42
Diphtheria .. ..	10	8	3	1	22
Membranous croup ..	—	—	1	—	1
Enteric Fever .. ..	2	1	4	2	9
Puerperal Fever .. ..	1	—	—	—	1
Erysipelas .. ..	3	5	—	2	10
	—	—	—	—	—
Total .. ..	36	26	12	12	86

SMALL-POX was imported into a cottage at Southwick in the month of February. Mr. R., 45 years of age, a fisherman, left this place for Havre on January 22nd, at 11 p.m. and sailed in his smack, with three other sailors, for the purpose of catching escalops. He landed at Havre where there were at the time several cases of small-pox, but he was not then aware of the fact, nor did he remember seeing any one who was suffering from that disease. He left Havre on February 4th, and reached home on February 8th, having felt unwell all the journey. On February 9th a rash appeared on his face and forehead while he had aching pains in the limbs and back, and he was also sick. He had been vaccinated successfully when a baby. On arriving home there were the following inmates in the cottage which contained two living and four bedrooms :—

Mrs. R., vaccinated successfully when a baby.

Grace R.,  $3\frac{1}{2}$  years, 3 good marks on left arm.

Percy R., 1 year, not vaccinated.

And a male lodger, 65 years, who left for Brighton on Feb. 13th.

An attempt was made to take Mr. R. to Hangleton Hospital, but it was unsuccessful on the ground of expense. A trained nurse from Brighton came on February 14th to look after the patient. Mrs. R. and her infant remained in the house, while Grace R. was sent to some relations on February 14th. Mrs. R. and Grace were re-vaccinated, and the baby was vaccinated at once, and in each case with successful results. Several of the neighbours were also re-vaccinated. The Authority not only provided a nurse, but also all food, coal, and necessaries for the inmates of the house, so that none of them had occasion to leave the dwelling, nor did they do so until all danger of infection was over. The patient had a severe attack, but he made a good recovery in about a month's time. There was no further case in this house, nor in the adjoining cottage, where a man lived with his wife and five children, nor in the village, nor among the other men in

the smack in which Mr. R. returned. There were, however, two other cases of fishermen at New Shoreham, who also contracted the disease at Havre, and they were removed to Hangleton Hospital and recovered; this town is not in this district.

The lodger, 65 years old, who left suddenly for Brighton on February 13th, and who was not re-vaccinated, returned to a house at Southwick, and slept there on February 27th and 28th; on March 1st he fell ill and was taken to New Shoreham Workhouse on that day, whence he was taken to Hangleton Hospital, and in due course he recovered. There was no further spread of the disease anywhere.

SCARLATINA appeared in a very mild form in several places; out of 42 cases only 1 died, and in 1893 out of 121 cases only 3 died, so that the mortality is about 1 in 40 attacked, or 2·5 per cent.

## WATER SUPPLY.

There is no difference in the public water supply from what has been described in my eighteenth and twentieth Annual Reports, so that no further information need be given. The water supply from the Shoreham Waterworks was, as usual, of excellent quality, and upon this only does the good health of Portslade, Southwick, and Kingston depend.

## DRAINAGE AND SEWAGE.

Nothing was practically done last year in carrying out any system of sewage for these two places, although much time was spent in discussing the subject.

Probably the best plan would be for all the authorities around to meet together and to try and agree on some joint course of action. Brighton and Hove might well be asked to join in such a movement, as a large amount of their poorer and working population live at these places to avoid the expenses of a town life.

The condition of things is rather worse than when I described it three years ago in a passage which is here reproduced:

At Portslade there is no system of drainage. The question has been discussed by the Authority for many years but nothing has been done. As far back as 1877 an enquiry was held as to the drainage of this old village, but the scheme then proposed fell through on the ground of expense. Since then, the drainage of the old village has been utilized on some market gardens, and although the system is rough, the nuisance is very much abated.

Within the last thirty years there has sprung up a new Portslade, consisting of many small houses situated between the railway and the sea, and extending to the north of the railway as far as the old village.



This portion is inhabited by a poor and shifting class of people, who live here because rents and rates are cheaper than at Brighton or Hove. The drainage of each house consists of a w.c. in the back yard, entered from the open air; furnished with a long hopper pan and trap, and generally flushed by hand. The sink pipe delivers into the open air on to a trap which is connected to a drain. There are, as a rule, no closets or drains inside the houses. The drainage from each pair of such houses generally passes into a cesspool dug in the adjacent back yard, whence the contents are removed at intervals. The subsoil is very porous, so that the contents soak into the ground and pass in a southerly direction to the sea. When one cesspool gets full, another is often dug near it, and a connection is made between the two; in a few cases, a third cesspool has been made. There is, therefore, a sheet of filthy water about 17ft. to 20ft below the surface of the ground always flowing southward. A few years ago, a long wall was built along the canal to the south of some of the houses, and this interfering with the sub-soil flow, causes the cesspools to fill oftener than before. Many of the cesspools are roughly ventilated by carrying up a pipe to a point above the eaves of the house, but there is no second opening, and no current of fresh air. There are a great many difficulties in the way of draining this area, the chief one being on account of the cost. A wide canal runs between the main road and the sea, and then a loose, shingly beach has to be crossed, so that the outlay would be very considerable. These defects urgently call for a remedy.

The neighbouring parish of Southwick is in a similar condition, and any system adopted for one place would do also for the other.

Portslade and Southwick will be in separate Council Districts after the close of 1894, but no doubt the matter will receive the immediate attention of each Council, as well as of the Shoreham Harbour Trustees.

The whole length of the east arm of the Harbour facing Southwick is in a very offensive condition.

Southwick and Portslade are at the present time anxious to drain separately, but a joint scheme which would include New Shoreham, and Kingston as well as the above named places, will probably prove in the end the most effective.

### SYSTEMATIC INSPECTION.

The following statement gives a summary of the work done by Mr. T. F. Gates, the Sanitary Inspector, during the past year:—

No. of Houses, &c., inspected	..	..	..	1,549
No. of Nuisances reported	..	..	..	651
No. of Nuisances abated without formal notice	..			227
Houses reported unfit for human habitation	..			3
Houses closed by order	..	..	..	1
Houses cleansed and disinfected	..	..	..	54
Houses cleansed and whitewashed	..	..	..	37

Water certificates granted for new houses	..	14
New wells dug	.. .. .	2
Well cleansed	.. .. .	1
Old well closed	.. .. .	1
Cases of overcrowding abated	.. .. .	6
No. of samples of water analysed	.. .. .	3
No. of samples of water found polluted	.. .. .	2
Unwholesome food seized	.. .. .	none
Earth closets provided	.. .. .	6
Privies altered	.. .. .	8

### SCAVENGING AND CLEANSING.

The usual contracts were made for removing ashes and house refuse from the houses in Portslade and Southwick. The work of removal is now done more carefully, but constant supervision is required as there is much neglect and carelessness on the part of the poorer inhabitants.

### COWSHEDS AND DAIRIES.

Regulations under the Contagious Diseases (Animals) Act, 1886, and the Dairies, Cowsheds, and Milk-shops Order of 1885 were adopted in the whole of this Rural Sanitary District on April 26th, 1887, and they came into force on June 1st, 1887.

There are 49 registered cowsheds and dairies, and in these there are kept about 1,063 cows, the number slightly varying from time to time. In a few cases butter only is made, and the skimmed or separated milk is either sold, given away, or used as food for pigs.

The sheds have been frequently inspected, and they have been well kept.

### MARGARINE ACT.

There are 45 grocers in the district, but, except in the more populous places, very little Margarine is sold. There seems to be very little demand for it in small villages or hamlets. In places where it is sold the clauses of the Act have been complied with.

### BAKEHOUSES.

There are 33 bakehouses in the district, and these have been duly inspected, and kept in a clean condition.



## SLAUGHTER HOUSES.

There are twelve slaughter houses in the four largest parishes, and none in the smaller places. These have been often inspected, and they have been kept in a clean condition.

## COMMON LODGING HOUSES.

There is no common lodging house in this district.

No proceedings were taken before the Magistrates.

INQUESTS were held in twelve cases;—Male, 50 years, brain disease; male, 40 years, accidentally drowned; male, 26 years, accidentally knocked down by train; male, 59 years, suicide; male, 23 years, suicide; male, 55 years, drowned; male, 40 years, suicide by shooting; male, 50 years, accidentally drowned; male, 30 years, rupture of an aneurism; female, 3 days, accidentally suffocated; male, 29 years, accidentally drowned; male, 32 years, suicide by cutting throat.

## STEYNING RURAL SANITARY DISTRICT.

TABLE 1.—Showing the Deaths at various groups of ages in the fourteen years, 1881-94.

Year.	At all ages.	Under 1 Year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
1881-85... ..	1,250	279	157	70	64	343	337
1886-90... ..	1,279	236	138	62	61	370	412
1891 ... ..	305	63	34	11	7	89	101
1892 ... ..	317	69	40	12	13	85	98
1893 ... ..	270	61	28	16	17	75	73
1894 ... ..	201	40	14	5	6	67	69
Total...	3,622	748	411	176	168	1,029	1,090

## STEYNING RURAL SANITARY DISTRICT.

TABLE 2.—Showing the Deaths in the nineteen years, 1876-94, from various causes.

Year.	Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza.	Total.
					Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.								
1876-80 ...	—	16	9	—	2	10	4	—	7	—	6	12	29	51	—	—	146
1881-85 ...	1	29	33	—	3	22	2	—	2	—	5	12	38	42	3	—	192
1886-90 ...	—	2	13	—	3	16	—	—	1	—	6	6	29	45	3	7	131
1891 ...	—	—	5	1	—	1	—	—	—	—	—	8	8	6	3	10	42
1892 ...	—	—	8	—	—	1	—	—	—	—	1	3	21	6	1	23	64
1893 ...	—	3	7	4	—	6	—	—	—	—	—	3	3	10	1	7	44
1894 ...	—	1	3	—	—	3	—	—	—	—	3	4	—	3	1	4	22
Total...	1	51	78	5	8	59	6	—	10	—	21	48	128	163	12	51	641

## STEYNING RURAL SANITARY DISTRICT.

TABLE 3.—Showing the Deaths and Death-rate from all causes and from various causes in the nineteen years, 1876-94.

PERIOD.	Deaths during the years 1876-94 from						Annual Death-rate per 100,000 living from					
	Population in middle of period.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.	
1876-80	15,530	1,168	146	141	168	78	1,504	188	182	216	100	
1881-85	17,000	1,250	192	122	158	101	1,451	224	141	181	117	
1886-90	18,610	1,279	124	112	197	114	1,378	134	121	212	122	
1891	19,100	305	32	13	58	27	1,597	167	68	303	141	
1892	19,340	317	41	15	53	33	1,639	207	77	274	170	
1893	19,630	270	37	25	30	27	1,426	188	127	153	137	
1894	17,050	201	18	16	24	28	1,180	105	94	141	164	



(A)—Table of DEATHS during the Year 1894, in the Steyning Rural

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.  (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)	1	2	3
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)		Small Pox. .....	Scarlatina. .....	Diphtheria. .....
Portslade Parish .....	55	18	5	1	3	15	13	Under 5 ..... 5 upwards.	.....	.....	1
Southwick Parish .....	36	10	3	3	—	12	8	Under 5 ..... 5 upwards.	.....	.....	1
Rest of Shoreham Sub-District	33	4	2	—	1	13	13	Under 5 ..... 5 upwards.	.....	1	.....
Steyning Parish .....	19	3	1	—	—	7	8	Under 5 ..... 5 upwards.	.....	.....	.....
Henfield Parish .....	26	4	3	1	—	8	10	Under 5 ..... 5 upwards.	.....	.....	.....
Rest of Steyning Sub-District	25	1	—	—	2	10	12	Under 5 ..... 5 upwards.	.....	.....	.....
Hangleton Hospital.....	2	—	1	—	—	1	—	Under 5 ..... 5 upwards.	.....	1	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
TOTALS.....	196	40	15	5	6	66	64	Under 5 ..... 5 upwards.	.....	1 1	1 2

The subjoined numbers have also to be taken into

Deaths occurring outside the District among persons belonging thereto.....	7					2	5	Under 5 ..... 5 upwards.	.....	.....	.....
Deaths occurring within the District among persons not belonging thereto...	2		1			1		Under 5 ..... 5 upwards.	.....	1	.....



District, classified according to Diseases, Ages, and Localities.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN  
UNDER FIVE YEARS OF AGE.

[illegible]

account in judging of the above records of mortality.

[illegible]

## (B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES

Officer of Health, during the year 1894, in the STEYNING Rural

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICK- COMING TO THE KNOWLEDGE OF					
	Census 1891.	Esti- mated to mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.	
									Typhus.	Enteric or Typhoid.
(a)	(b)	(c)	(d)	(e)						
Portslade Parish .....	4,236	4,380	154	Under 5 ..... 5 upwards.	.....	1 ..... 18	2 ..... 3	1 .....	.....	2 ..... 3
Southwick Parish .....	2,558	2,600	86	Under 5 ..... 5 upwards.	..... 1	..... 8	..... 9	.....	.....	.....
Rest of Shoreham Sub-district	3,977	4,000	102	Under 5 ..... 5 upwards.	.....	..... 1	..... 6	.....	.....	..... 4
Steyning Parish .....	1,705	1,710	43	Under 5 ..... 5 upwards.	.....	..... 2 ..... 5	..... 1	.....	.....	.....
Henfield Parish .....	2,006	2,030	43	Under 5 ..... 5 upwards.	.....	..... 1	.....	.....	.....	.....
Rest of Steyning Sub-district	2,336	2,320	52	Under 5 ..... 5 upwards.	.....	..... 2 ..... 4	.....	.....	.....	.....
Hangleton Hospital .....	6	10		Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
				Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
				Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
				Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
				Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
TOTALS .....	16,824	17,050	480	Under 5 ..... 5 upwards.	..... 1	..... 7 ..... 35	..... 3 ..... 19	..... 1	.....	..... 2 ..... 7

OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

[illegible]

(The "H" shows where the Infectious Hospital is.)



HORSHAM  
RURAL SANITARY AUTHORITY.

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pp. 19 et seq.

## RURAL SANITARY DISTRICT OF HORSHAM.

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The population in this registration district was 13,400 at the census of 1841, and 14,018 in 1851; partly owing to changes in the area, it rose to 17,876 in 1861, and to 19,935 in 1871, and then by steady increases to 22,300 in 1881, and to 24,885 in 1891.

The above figures, however, include the urban district of Horsham, which was formed in 1875, and which had a population of 6,874 in 1881, and 8,087 in 1891; Crawley was added in 1880.

The following figures relate only to the present rural sanitary area:—

	1861.	1871.	1881.	1891.
Area in Statute Acres ..	—	68,798	69,706	71,277
Number of Inhabited Houses..	2,375	2,713	3,013	3,410
„ Uninhabited „ ..	56	135	177	232
Population .. ..	13,022	13,710	15,426	16,798
Males .. ..	6,872	7,097	7,915	8,585
Females .. ..	6,150	6,613	7,511	8,213

The following tables show the population in each parish; and also the deaths from all causes and from various causes in each parish over a long term of years:—

	HOUSES, 1891.				POPULATION.						
	Inhabited.	Un- inhabited.	Building.	Persons, 1861.	Persons, 1871.	Persons, 1881.	Persons, 1891.	Males, 1891.	Females, 1891.		
SOUTH SUB-DISTRICT:—											
West Grinstead ..	286	24	—	1,403	1,344	1,476	1,582	906	676		
Shipley ..	205	21	3	1,212	1,147	1,114	1,061	567	494		
Nuthurst ..	173	9	3	767	711	811	853	449	404		
Horsham (South)	118	2	—	793	755	682	555	295	260		
NORTH SUB-DISTRICT:—											
Horsham (North)	462	33	2	1,100 <sup>1</sup>	1,443	1,996	2,421	1,269	1,152		
Lower Beeding ..	270	10	—	1,149	1,246	1,309	1,284	641	643		
Crawley ..	85	10	—	473 <sup>2</sup>	505 <sup>2</sup>	451	437	221	216		
Ifield ..	600	34	—	1,307	1,639	2,043	2,817	1,361	1,456		
Rusper ..	117	8	—	590	599	539	548	285	263		
Warnham	225	11	3	1,006	1,007	1,065	1,060	546	514		
WEST SUB-DISTRICT:—											
Slinfold ..	178	7	3	755	796	773	853	412	441		
Itchingfield	94	14	—	377	377	434	492	241	251		
Rudgwick	234	10	—	1,068	1,069	1,122	1,177	609	568		
Billingshurst	363	39	—	1,495	1,577	1,611	1,658	783	875		

1. Estimated.      2. Crawley was not in this district until 1880 ; it is included here for the purpose of comparison.



PARISH.	DEATHS FROM ALL CAUSES IN THE YEARS										Total in Twenty Years.	1876-80.				1881-85.				1886-90.			
	1886-90					1881-85						Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.	Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.	Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.
	1875	1876-80	1881-85	1886-90	1891	1892	1893	1894															
West Grinstead ..	13	94	108	97	18	25	21	21	21	397	9	1	5	16	16	6	7	12	9	1	12	12	
Shipley ..	25	80	80	78	27	19	16	17	17	342	5	1	10	11	10	4	10	15	9	—	5	16	
Nuthurst ..	15	59	62	54	15	16	5	13	13	239	7	—	9	12	4	—	9	11	2	1	4	9	
Horsham (South)	10	50	52	44	12	5	3	11	11	187	9	4	8	8	3	1	1	7	7	—	2	9	
Horsham (North)	33	150	121	163	32	52	46	29	29	626	11	2	10	33	8	—	9	19	18	—	18	26	
Lower Beeding ..	15	85	75	97	15	19	12	13	13	331	7	—	9	13	6	1	5	23	7	—	10	14	
Crawley (1880) ..	—	3	26	21	4	5	6	9	9	74	—	—	—	1	2	—	16	26	2	—	7	3	
Ifield ..	37	113	145	185	33	40	45	27	27	625	10	—	17	17	13	4	5	4	25	6	18	42	
Rusper ..	9	35	28	31	14	13	4	4	4	138	2	—	8	5	2	—	1	6	—	—	2	5	
Warnham ..	17	76	68	79	15	17	14	9	9	295	8	—	8	16	7	2	3	17	10	1	4	14	
Slinfold ..	8	58	73	57	11	10	14	3	3	234	3	—	5	13	14	8	5	8	2	—	10	6	
Itchingfield ..	3	32	30	31	6	4	2	6	6	114	6	—	3	8	1	—	9	1	2	—	2	4	
Rudgwick ..	16	116	68	67	14	30	15	24	24	350	7	—	8	23	4	1	6	15	8	2	8	5	
Billingshurst ..	24	136	106	138	24	34	32	18	18	512	10	—	20	26	5	2	11	19	6	—	19	24	
	225	1,087	1,042	1,142	240	289	235	204	204	4,464	94	9	120	202	95	29	97	183	107	11	121	189	

## BIRTHS AND BIRTH-RATE.

During the year 1894, the births of 416 children were registered ; of these 197 were male, and 219 were female.

Estimating the population in the middle of the year at 17,160, the birth-rate was equal to 24·2 per 1,000 persons living.

The births and birth-rate during the past ten years have been as follows :—

Year.	Births	Birth-rate.	Year.	Births.	Birth-rate.
1885 ..	429 ..	27·1	1890 ..	420 ..	26·0
1886 ..	496 ..	31·2	1891 ..	467 ..	27·8
1887 ..	452 ..	28·3	1892 ..	399 ..	23·6
1888 ..	454 ..	28·3	1893 ..	394 ..	23·1
1889 ..	418 ..	26·0	1894 ..	416 ..	24·2

The mean number of births is 434, and the mean birth-rate is 26·6 per 1,000 of population.

In England and Wales the birth-rate during the year was 29·6 per 1,000 persons living, a rate 2·0 per 1,000 below the mean rate in the ten years, 1884-93.

The following table shows the births and birth-rate in each locality during the past four years :—

	Births.					Birth-rate.			
	1891.	1892.	1893.	1894.		1891.	1892.	1893.	1894.
South Sub-district ..	107	89	86	101	..	26·4	22·0	21·3	25·0
Ifield Parish ..	83	86	65	59	..	29·2	29·4	21·6	19·2
Rest of North Sub-district ..	152	126	150	154	..	26·4	22·0	25·8	26·4
West Sub-district ..	125	98	93	102	..	29·9	23·3	22·1	24·2
Total ..	467	399	394	416	..	27·8	23·6	23·1	24·2

## GENERAL MORTALITY.

There were 216 deaths registered in this district during the year 1894, but from this number must be deducted the deaths of 12 persons in Horsham workhouse, who came from the Horsham Urban Sanitary District ; the remaining 15 workhouse deaths were distributed among the several parishes whence each inmate came, viz., West Grinstead 1, Shipley 2, Nuthurst 2, Horsham 4, Lower Beeding 2, Ifield 1, Rusper 1, Rudgwick 1, and Billingshurst 1, in all 15.

Estimating the population in the middle of the year at 17,160, the death-rate was equal to 11·9 per 1,000 persons living.

The variations in the death-rate during the past ten years have been as follows :—

Year.	Deaths.	Death-rate.	Year.	Deaths.	Death-rate.
1885 ..	228 ..	14·4	1890 ..	210 ..	12·9
1886 ..	291 ..	18·3	1891 ..	240 ..	14·7
1887 ..	209 ..	13·1	1892 ..	289 ..	17·7
1888 ..	219 ..	13·6	1893 ..	235 ..	13·8
1889 ..	213 ..	13·2	1894 ..	204 ..	11·9

Thus the mean annual number of deaths is 234, and the mean annual death-rate is 14·4 per 1,000 of the population. During the same period there were 4,345 births, so that the natural increase of population by excess of births over deaths was 2,007. The actual increase as shown by the census of 1891 was 1,372, so that a large number of persons must have left the district during the past decade.

In country places throughout England and Wales the mortality in 1894 was equal to 15·6 per 1,000 of population.

In each locality the deaths and death-rate are here shown for the past four years :—

	Deaths.					Death-rate.			
	1891.	1892.	1893.	1894.		1891.	1892.	1893.	1894.
South Sub-district ..	72	65	45	62	..	15·3	16·0	11·1	15·4
Ifield Parish ..	33	40	45	27	..	11·6	13·7	15·0	8·8
Rest of North Sub-district ..	80	106	82	64	..	13·9	18·5	14·1	11·0
West Sub-district ..	55	78	63	51	..	13·1	18·6	14·9	12·1
Total ..	240	289	235	204		14·3	17·1	13·8	11·9

As the occupation and the age distribution of the population are very similar in each sub-district, the death-rate does not show much variation.

In each parish the deaths were thus distributed :—

West Grinstead ..	21	..	Ifield ..	27
Shipley ..	17	..	Rusper ..	4
Nuthurst ..	13	..	Warnham ..	9
Horsham (south) ..	11	..	Slinfold ..	3
Horsham (north) ..	29	..	Itchingfield ..	6
Lower Beeding ..	13	..	Rudgwick ..	24
Crawley ..	9	..	Billingshurst ..	18
Total ..	204.			

### INFANT MORTALITY.

The *infant mortality* is here given as measured by the number of deaths under one year of age to the total number of births in the year :—



			Births.	Deaths under one year.	Ratio to 1000 Births.
South Sub-district .. ..	..	..	101	11	109
Ifield Parish .. ..	..	..	59	5	85
Rest of North Sub-district..	..	..	154	10	66
West Sub-district .. ..	..	..	102	8	78
Total .. ..			416	34	82

The mean annual rate in the previous six years 1888-93 was 93 per 1,000 registered births.

In England and Wales the proportion of deaths under one year of age to registered births was 137 per 1,000 during the past year, the mean proportion in the preceding ten years having been 147.

ZYMOTIC MORTALITY.

The deaths from zymotic diseases were 6 in number in the case of those which are notifiable, and 1 in the other class where the number of cases cannot be obtained.

				Cases.	Deaths.
Fevers.	Small-pox .. ..	..	..	1	none
	Scarlatina .. ..	..	..	14	none
	Diphtheria .. ..	..	..	13	5
	Membranous Croup .. ..	..	..	none	none
	Typhus .. ..	..	..	none	none
	Enteric .. ..	..	..	5	none
	Continued .. ..	..	..	none	none
	Relapsing .. ..	..	..	none	none
	Puerperal .. ..	..	..	none	none
	Cholera .. ..	..	..	none	none
	Erysipelas .. ..	..	..	4	1
Total ... ..				37	6

In the other class the deaths were as follows :—

Measles .. ..	..	..	none
Whooping Cough .. ..	..	..	1
Diarrhoea and Dysentery .. ..	..	..	none
Rheumatic Fever .. ..	..	..	none
Total .. ..			1

Adding the two classes together, there is a total of 7 deaths with a zymotic mortality of 0·4 per 1,000.

The prevalence in each quarter of each notifiable disease is shown in the following table :

	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.
Small-pox .. ..	—	—	—	1	1
Scarlatina .. ..	11	1	1	1	14
Diphtheria .. ..	3	1	6	3	13
Enteric Fever .. ..	—	1	1	3	5
Erysipelas .. ..	1	1	1	1	4
	—	—	—	—	—
Total..	15	4	9	9	37

The Infectious Disease (notification) Act, 1889, came into operation in this district on April 2nd, 1890, and the number of cases notified were 33 in 1890, 81 in 1891, 54 in 1892, 103 in 1893, and 37 in 1894.

### SYSTEMATIC INSPECTION.

The following is a list of routine work during the year as recorded in the books of the Sanitary Inspector, Mr. Moses Brooks.

No. of Houses, &c., inspected .. ..	1,075
No. of Nuisances reported .. ..	346
No. of Nuisances abated without notice .. ..	190
No. of Nuisances abated with notice .. ..	151
No. of Nuisances now in course of abatement .. ..	5
Houses reported as unfit for habitation .. ..	5
Houses closed .. ..	4
Houses disinfected .. ..	26
Houses cleansed and limewashed .. ..	44
Water certificates granted for new houses ..	38
New wells dug .. ..	28
Wells cleaned out .. ..	5
Houses supplied from Horsham Waterworks ..	6
No. of samples of water analysed .. ..	10
No. of samples of water found polluted .. ..	2
Cases of overcrowding reported .. ..	8
Cases of overcrowding abated .. ..	8
New closets erected .. ..	9
Old closets converted into earth closets .. ..	15
Old closets provided with proper cesspit .. ..	4
Old closets provided with short hopper and trap ..	4
No. of gully traps put in to replace old bell traps	25
Houses connected with Crawley and Ifield main sewer .. ..	12
Legal proceedings .. ..	2
No. of registered cowsheds and dairies .. ..	56
No. of cows .. ..	676
No. of visits made to same .. ..	159
No. of slaughter houses .. ..	19
Frequent visits have been made to the same.	
No. of bakehouses .. ..	38

These have been frequently visited, and each one has been limewashed twice during the year.

## NEW HOUSES.

The following is a list of new houses erected in 1894, for which water certificates were applied for and granted :—

Horsham, House and Shop. Supplied from Horsham Waterworks.  
 Slinfold, Cottage. Well 14ft. deep, 6½ft. of water. Tank, 600 gallons.  
 Horsham, Cottage. Well, 24ft. deep, 18ft. of water.  
 Ifield, Pair of Cottages. Well, 21ft. deep, 14ft. of water.  
 Horsham, Pair of Cottages. Well, 26ft. deep, 22ft. of water.  
 Horsham, Cottage. Well, 39ft. deep, 27ft. of water.  
 Lower Beeding, Pair of Cottages. Well, 15ft. deep, 11ft. of water.  
 Ifield, Pair of Cottages. Well, 18ft. deep, 11ft. of water.  
 Billingshurst, Cottage. Well, 35ft. deep, 20ft. of water.  
 Horsham, Three Villas. Supplied from Horsham Waterworks.  
 Nuthurst, Cottage. Well, 24ft. deep, 14ft. of water.  
 Horsham, Pair of Cottages. Well, 26ft. deep, 14ft. of water.  
 Horsham, Pair of Cottages. Well, 19ft. deep, 10ft. of water.  
 Ifield, Villa. Well, 20ft. deep, 16ft. of water.  
 Ifield, Villa. Well, 21ft. deep, 15ft. of water.  
 Ifield, Villa. Well, 17ft. deep, 12ft. of water.  
 Ifield, Villa. Well, 23ft. deep, 15ft. of water.  
 Lower Beeding, Villa. Well, 16ft. deep, 9ft. of water, and rain water tank.  
 Horsham, Pair of Cottages. Well, 19ft. deep, 11ft. of water.  
 Horsham, Pair of Villas. Supplied from Horsham Waterworks.  
 Ifield, Villa. Well, 18ft. deep, 10ft. of water.  
 Rudgwick, House. Well, 64ft. deep, 14ft. of water.  
 Rudgwick, Cottage. Rain water tank, 1,000 gallons, and dipping pond.  
 Rudgwick, Cottage. Well, 30ft. deep, 13ft. of water.  
 Horsham, Pair of Cottages. Well, 23ft. deep, 16ft. of water.  
 Ifield, Pair of Cottages. Well, 22ft. deep, 16ft. of water.

## WATER SUPPLY.

There is a reservoir near the Horsham Workhouse, which is supplied from the town, and several houses near obtain water from this source. This is the only public supply in the district. In all other cases the water is obtained from deep or shallow wells, from springs, dipping holes, ponds, or rain water tanks. The wells vary much in depth, some being only 12 feet deep, while others may be sunk 100 feet or more. At Shipley and Kingsfold it is very difficult to obtain good water, for even when deep wells are provided, the supply may turn out to be so brackish as to be unfit for drinking purposes.

## DRAINAGE AND SEWAGE.

The villages in this district, except Warnham, have no main system of sewage disposal. The chief works of this kind are at Ifield and Crawley, an account of which is given below. Most of the houses are so scattered, and so many of the cottages are surrounded by gardens that it is an easy matter to deal on the soil with any sewage matter. Earth closets are not often met with as they are not approved of in



this district. The simplest form of closet in use is one having a small, covered cesspit at the back into which earth or ashes can be readily thrown ; being small, it must be often cleansed, while it is so made as to keep off rain and sunshine, at the same time allowing plenty of air to pass through. There is a general improvement in recent years, and by degrees all large cesspools are given up, and there is much more care taken in the cleanliness of the surroundings than at former periods.

### COWSHEDS AND DAIRIES.

There are 56 registered cowsheds and dairies, and in these there are kept about 676 cows, the number slightly varying from time to time. Many of these sheds contain from 40 to 80 cows on a farm, and are very well kept, care being taken that there is an ample supply of good water, plenty of light and ventilation, frequent removal of refuse, and cleansing of the walls and floor.

The cows in many cases are kept in the open field for the greater part of the year, the cowsheds being used at night.

### MARGARINE ACT.

Very little margarine is sold by the grocers, and where it can be obtained the regulations of the Act have been complied with. There seems to be no demand for this substance on the part of the scattered agricultural population.

### BAKEHOUSES.

These are 38 in number ; they have been often inspected, and they have been well kept. There is no bakehouse on a large scale, and the chief duty is to see that they are frequently cleansed and limewashed. In each case there is a good amount of light and air, and in no case is there any drain within the building.

### SLAUGHTER HOUSES.

These are 19 in number, and they are very well kept, as regards cleanliness and removal of refuse. In many instances animals are killed only once or twice a week, so that there is no difficulty in keeping them clean and tidy. Each slaughter house is often limewashed, and the blood is generally removed at once for use in a garden.

### IFIELD AND CRAWLEY SEWAGE FARM.

Mr. Moses Brooks sent in the following report to the Authority for the year ending March 25th, 1894 :—

I am pleased to state that during that time I have received no complaint whatever as to the condition of the effluent water on leaving the Sewage Farm.

During the past year I have had a portion of the lower part of the farm, "about two acres," cleaned and sown with Rye Grass. The cost of this, including ploughing and sowing, was £10 10s. 9d. This was cut once and realized the sum of £3. There is now a good crop and it is proposed to offer this for sale by tender.

The sum received for the Rye Grass upon the farm during the year, including the above £3, was £12, being £6 10s. more than in the previous year.

A portion of the sludge that has been taken out of the tanks has been sold for £2 and there is now a large quantity to be disposed of.

By constant care and attention and frequently cleaning out the seven large tanks and then passing the effluent water over the land, I have been able to keep the effluent water from becoming a nuisance, and to ensure that this is properly attended to, I have made 86 visits to the farm during the year. About half of this number have been special journeys for this purpose.

The following is a summary of the Receipts from and Expenditure on the farm during the year :—

RECEIPTS.				EXPENDITURE.			
	£	s.	d.		£	s.	d.
Sale of Rye grass as per tender ..	8	0	0	Cost of cleaning, ploughing, and sowing two acres of land ..	10	10	9
Ditto ..	3	0	0	Labour for the year	51	12	9
Ditto ..	1	0	0	Tools, &c. ..	0	7	10½
Sale of Sludge ..	2	0	0				
	14	0	0				
Excess of expenditure over receipts ..	48	11	4½				
	£62	11	4½		£62	11	4½

### RAINFALL.

This table showing the rainfall in each month has been kindly sent to me by H. Padwick, Esq., J.P., who has made similar observations for many years :—

Month.	Fall in inches.	No. of rainy days.
January ..	4·83	24
February ..	2·26	16
March ..	1·89	14
April ..	3·28	14

Month.					Fall in inches.		No. of rainy days.
May	..	..	..	..	2.05	..	13
June	..	..	..	..	2.51	..	13
July	..	..	..	..	6.92	..	22
August	..	..	..	..	2.69	..	16
September	..	..	..	..	2.60	..	10
October	..	..	..	..	3.64	..	17
November	..	..	..	..	6.97	..	18
December	..	..	.	..	2.54	..	12

Year.					Fall in inches.		No. of rainy days.
1894	..	..	..	..	42.18	..	189
1893	..	..	..	..	25.06	..	156
1892	..	..	..	..	27.53	..	161
1891	..	..	..	..	34.84	..	178
1890	..	..	..	.	25.37	..	143

INQUESTS were held in twenty cases :—Female, 58 years, found drowned; male, 27 years, failure of heart's action during an epileptic fit; male, 45 years, suicide by shooting; male, 16 months, bronchitis and pneumonia; female, 13 years accidentally burnt; female, 28 years, pneumonia; male, 22 years, accidentally suffocated in a pool of water, whilst in an epileptic fit; female, 68 years, accidental fall; male, 56 years, disease of lungs and heart, accelerated by exposure; male, 44 years, ulcer of stomach; male, 79 years, accidentally drowned; male, 60 years, heart disease; female, 83 years, accidental fall; male, 39 years, heart disease; male, 61 years, found drowned; male, 6 years, bronchitis; female, 13 months, inflammation of lungs; male, 17 years, killed by being drawn into machinery of engine; male, 75 years, heart disease; female, 21 years, syncope.

There were two deaths returned as “not certified” during the year :—Male, 75 years, syncope, heart disease; female, 21 years, natural causes, syncope.



## HORSHAM RURAL SANITARY DISTRICT.

TABLE 1.—Showing the Deaths at various groups of ages in the fourteen years, 1881-94.

Year.	At all ages.	Under 1 Year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
1881-85... ..	1,042	189	93	57	55	318	330
1886-90... ..	1,142	223	110	76	60	280	393
1891 ... ..	240	40	27	10	11	61	91
1892 ... ..	289	49	25	15	16	80	104
1893 ... ..	235	37	21	9	10	79	79
1894 ... ..	204	34	10	15	16	55	74
Total...	3,152	572	286	182	168	873	1,071

TABLE 2.—Showing the Deaths in the nineteen years, 1876-94, from various causes.

Year.	Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza.	Total.
					Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.								
1876-80 ...	1	9	9	—	—	9	3	—	3	—	—	17	23	19	1	—	94
1881-85 ...	—	4	29	—	1	3	3	—	4	—	6	5	20	16	4	—	95
1886-90 ...	1	9	11	—	1	3	2	—	—	—	2	27	28	21	2	3	110
1891 ... ..	—	1	3	—	—	2	—	—	1	—	—	3	4	2	—	4	20
1892 ... ..	—	—	—	—	—	—	—	—	—	—	3	5	5	1	2	18	34
1893 ... ..	5	1	6	—	—	1	—	—	—	—	—	—	3	3	—	6	25
1894 ... ..	—	—	5	—	—	—	—	—	—	—	1	—	1	—	—	4	11
Total...	7	24	63	—	2	18	8	—	8	—	12	57	84	62	9	35	389

## HORSHAM RURAL SANITARY DISTRICT.

TABLE 3.—Showing the Deaths and Death-rate from all causes and from various causes in the nineteen years, 1876-94.

PERIOD.	Deaths during the years 1876-94 from					Annual Death-rate per 100,000 living from					
	Population in middle of period.	All Diseases.	Zymotic Disease.	Pththisis.	Lung Disease.	Heart Disease.	All Diseases.	Zymotic Disease.	Pththisis.	Lung Disease.	Heart Disease.
1876-80	14,700	1,087	94	120	202	81	1,418	127	163	274	110
1881-85	15,750	1,042	95	97	183	79	1,306	120	122	228	98
1886-90	16,450	1,142	107	121	189	104	1,368	129	145	226	125
1891	16,820	240	16	18	48	31	1,427	95	107	286	185
1892	16,900	289	16	13	69	25	1,710	94	77	408	148
1893	17,050	235	19	21	31	22	1,378	111	123	182	129
1894	17,160	204	7	15	36	21	1,189	41	87	210	122

(A)—Table of DEATHS during the Year 1894, in the Horsham Rural Sanitary District.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.  (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.										
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)		1 Small Pox. (i)	2 Scarlatina. (j)	3 Diphtheria. (k)
South Sub-district .....	56	11	3	5	2	18	17	Under 5 ..... 5 upwards.	.....	.....	..... 2
Ifield Parish .....	26	5	4	3	1	5	8	Under 5 ..... 5 upwards.	.....	.....	.....
Rest of North Sub-district ..	58	10	2	3	3	22	18	Under 5 ..... 5 upwards.	.....	.....	..... 2
West Sub-district .....	49	8	1	4	8	9	19	Under 5 ..... 5 upwards.	.....	.....	..... 1
Horsham Workhouse .....	27	—	—	—	3	8	16	Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
TOTALS.....	216	34	10	15	17	62	78	Under 5 ..... 5 upwards.	.....	.....	..... 1 4

The subjoined numbers have also to be taken into account.

Deaths occurring outside the District among persons belonging thereto.....								Under 5 ..... 5 upwards.	.....	.....	.....
Deaths occurring within the District among persons not belonging thereto...	12	—	—	—	1	7	4	Under 5 ..... 5 upwards.	.....	.....	.....



District, classified according to Diseases, Ages, and Localities.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN  
UNDER FIVE YEARS OF AGE.

[illegible]

account in judging of the above records of mortality.

[illegible]

## (B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES

Officer of Health, during the year 1894, in the HORSHAM Rural

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICK- COMING TO THE KNOWLEDGE OF					
	Census 1891.	Esti- mated to mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS. Typhus. Enteric or Typhoid.	
(a)	(b)	(c)	(d)	(e)						
South Sub-district .....	4,051	4,030	101	Under 5 5 upwards.			1 3			
Ifield Parish .....	2,817	3,080	59	Under 5 5 upwards.			1 1			
Rest of North Sub-district ...	5,568	5,630	150	Under 5 5 upwards.			2 5			1
West Sub-district .....	4,180	4,220	102	Under 5 5 upwards.		2 4	1			4
Horsham Workhouse .....	182	200	4	Under 5 5 upwards.						
				Under 5 5 upwards.						
				Under 5 5 upwards.						
				Under 5 5 upwards.						
				Under 5 5 upwards.						
				Under 5 5 upwards.						
				Under 5 5 upwards.						
TOTALS .....	16,798	17,160	416	Under 5 5 upwards.		2 12	4 9			5

OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

[illegible]



PETWORTH  
RURAL SANITARY AUTHORITY.

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pp. 37 et seq.

## RURAL SANITARY DISTRICT OF PETWORTH.

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The population in this registration district was 9,680 at the census of 1841, and 9,629 in 1851; chiefly owing to changes in the area, it rose to 10,065 in 1861, but since 1871 there has been a steady decline.

The following figures relate to the present rural sanitary area which is co-extensive with the regulation district:

	1861.	1871	1881.	1891.
Area in Statute Acres ..	—	44,747	45,701	45,738
Number of Inhabited Houses..	1,970	2,010	1,995	2,000
„ Uninhabited „ ..	72	64	120	119
Population .. ..	10,065	10,147	9,594	9,431
Males .. ..	5,213	5,296	4,857	4,711
Females .. ..	4,852	4,851	4,737	4,720

The following tables show the population in each parish; and the deaths in each parish from all causes and from various causes over a long term of years:—

	HOUSES, 1891.			POPULATION.						
	Inhabited.	Un- inhabited.	Building.	Persons, 1861.	Persons, 1871.	Persons, 1881.	Persons, 1891.	Males, 1891.	Females, 1891.	
NORTH SUB-DISTRICT:—										
Wisborough Green	359	21	1	1,628	1,756	1,687	1,629	827	802	
Northchapel	163	21	1	785	802	794	742	381	361	
Kirdford	346	16	—	1,784	1,796	1,710	1,648	868	780	
SOUTH SUB-DISTRICT:—										
Petworth	609	41	—	3,368	3,304	2,942	2,867	1,391	1,476	
Egdean	17	—	—	85	80	76	75	37	38	
Fittleworth	159	2	1	683	695	696	761	361	400	
Stopham	32	1	—	130	145	156	151	74	77	
Coates	15	—	—	78	94	61	84	40	44	
Burton	11	—	—	45	67	73	57	29	28	
Duncton	55	1	—	258	262	268	259	119	140	
Barlavington	32	1	—	136	132	182	175	90	85	
Sutton	63	3	—	364	331	310	325	172	153	
Bignor	25	1	—	167	150	122	127	63	64	
Bury	114	11	—	509	533	517	531	259	272	



PARISH.	DEATHS FROM ALL CAUSES IN THE YEARS										Total in Twenty Years.	1876-80.				1881-85.				1886-90.			
	1876-80.					1881-85.						1876-80.				1881-85.				1886-90.			
	1875	1876-80	1881-85	1886-90	1891	1892	1893	1894	Zymotic Disease.	Diphtheria.		Phthisis.	Lung Disease.	Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.	Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.		
Wisborough Green	37	119	128	127	19	35	20	22	507	2	1	10	31	3	1	11	28	6	1	15	18		
Northchapel	12	63	79	60	15	11	12	11	263	8	6	8	5	3	3	9	18	2	1	8	9		
Kirdford ..	32	136	130	124	24	22	20	19	507	9	6	7	28	6	4	16	32	8	4	12	26		
Petworth ..	59	272	220	250	61	53	38	35	988	28	7	37	43	18	—	21	25	15	4	20	34		
Egdean ..	2	3	8	6	1	2	—	—	22	—	—	—	—	—	—	—	1	3	1	—	1		
Fittleworth	12	66	63	52	11	10	10	7	231	4	—	8	9	2	2	4	6	1	4	—	11		
Stopham ..	1	10	9	10	4	1	3	2	40	—	—	—	1	—	—	1	2	—	1	—	2		
Coates ..	3	6	3	6	1	1	—	3	23	3	—	1	1	—	—	—	—	—	—	—	—		
Burton ..	—	5	6	6	1	2	—	3	23	—	—	—	—	—	—	—	—	—	—	—	—		
Duncton ..	3	14	12	24	2	2	3	4	64	—	—	—	—	—	—	—	1	—	1	—	—		
Barlavington	1	5	6	10	—	2	3	2	29	1	—	—	4	—	—	—	3	—	3	—	1		
Sutton ..	6	25	28	26	5	2	6	4	105	1	—	1	5	—	—	5	1	—	2	—	6		
Bignor ..	2	13	12	18	2	2	1	—	50	—	—	—	3	—	—	1	3	1	2	—	2		
Bury ..	8	48	45	35	7	15	13	4	175	7	5	3	5	2	—	—	5	2	2	—	4		
Total ..	178	785	749	754	153	163	129	116	3,027	63	25	76	138	34	10	69	126	43	14	70	117		

## BIRTHS AND BIRTH-RATE.

During the year 1894 the births of 227 children were registered; of these 116 were male, and 111 were female.

Estimating the population in the middle of the year at 9,400, the birth-rate was equal to 24.1 per 1,000 persons living.

The births and birth-rate during the past ten years have been as follows :—

Year.	Births.	Birth-rate.	Year.	Births.	Birth-rate.
1885 ..	246	25.7	1890 ..	223	23.5
1886 ..	284	29.7	1891 ..	251	26.6
1887 ..	264	27.6	1892 ..	214	22.7
1888 ..	240	25.1	1893 ..	251	26.7
1889 ..	263	27.5	1894 ..	227	24.1

The mean number of births is 246, and the mean birth-rate is 25.9 per 1,000 of population.

In England and Wales the birth-rate during the year was 29.6 per 1,000 persons living, a rate 2.0 per 1,000 below the mean rate in the ten years, 1884-93.

The following table shows the births and birth-rate in each locality during the past four years :—

		Births.						Birth-rate.			
		1891.	1892.	1893.	1894			1891.	1892.	1893.	1894.
North Sub-district	..	108	95	109	96	..	26.9	23.7	27.2	24.0	
Petworth Parish	.	76	68	73	67	..	26.5	23.7	25.5	23.5	
Rest of South Sub-district	..	67	51	69	64	..	26.3	20.0	27.0	25.0	
Total..		251	214	251	227	..	26.6	22.7	26.7	24.1	

## GENERAL MORTALITY.

There were 116 deaths registered in this district during the year 1894; of these, four took place in Petworth Workhouse, six in Wisborough Green Workhouse, and one in Petworth Cottage Hospital. These deaths have been distributed amongst the several parishes whence each inmate came, viz., Wisborough Green 3, Kirdford 2, Petworth 5, and Fittleworth 1, in all 11.

Estimating the population in the middle of the year at 9,400, the death-rate was equal to 12.3 per 1,000 persons living.

The variations in the death-rate during the past ten years have been as follows :—

Year.	Deaths.	Death-rate.	Year.	Deaths.	Death-rate.
1885 ..	155 ..	16·2	1890 ..	136 ..	14·3
1886 ..	202 ..	21·1	1891 ..	153 ..	16·2
1887 ..	131 ..	13·7	1892 ..	163 ..	17·3
1888 ..	143 ..	14·9	1893 ..	129 ..	13·7
1889 ..	142 ..	14·8	1894 ..	116 ..	12·3

Thus there have been during the above period 1,470 deaths and a mean mortality of 15·4 per 1,000. During the same period there were 2,463 births, so that the natural increase of population by excess of births over deaths was 993.

The recent census returns, however, show that there has been a *decrease* of 163, so that a large number of persons must have left this district during the last decade.

In each locality the deaths and death-rate for the past four years are here shown :—

	Deaths.					Death-rate.			
	1891.	1892.	1893.	1894.		1891.	1892.	1893.	1894.
North Sub-district ..	58	68	52	52	..	14·4	16·9	13·0	13·0
Petworth Parish ..	61	53	38	35	..	21·3	18·5	13·3	12·9
Rest of South Sub-district ..	34	42	39	29	..	13·3	16·5	15·3	11·3
Total ..	153	163	129	116		16·2	17·3	13·7	12·3

In country places throughout England and Wales the mortality in 1894 was equal to 15·6 per 1,000 of population.

In each parish the deaths in 1894 were thus distributed :—

Wisborough Green ..	22	..	Coates ..	..	3
Northchapel ..	11	..	Burton ..	..	3
Kirdford ..	19	..	Duncton ..	..	4
Petworth ..	35	..	Barlavington ..	..	2
Egdean ..	none	..	Sutton ..	..	4
Fittleworth ..	7	..	Bignor ..	..	none
Stopham ..	2	..	Bury ..	..	4
Total ..	116.				

### INFANT MORTALITY.

The *infant mortality* is here given as measured by the number of deaths under one year of age to the total number of births in the year :—

	Births.	Deaths under one year.	Ratio to 1000 Births.
North Sub-district ..	96	6	62
Petworth Parish ..	67	3	44
Rest of South Sub-district ..	64	4	63
Total ..	227	13	57



The mean annual rate in the previous six years 1888-93 was 84 per 1,000 registered births.

In England and Wales the proportion of deaths under one year of age to registered births was 137 per 1,000, the mean proportion in the preceding ten years having been 147.

### ZYMOTIC MORTALITY.

There were eight deaths from zymotic diseases, of which six were among notifiable diseases and two in the other class. The rate of mortality was therefore equal to 0·85 per 1,000.

					Cases.	Deaths.
Fevers.	Small-pox	..	..	..	none	none
	Scarlatina	..	..	..	6	none
	Diphtheria	..	..	..	28	6
	Membranous Croup		..	..	none	none
	Typhus	..	..	..	none	none
	Enteric	..	..	..	none	none
	Continued	..	..	..	none	none
	Relapsing	..	..	..	none	none
	Puerperal	..	..	..	none	none
	Cholera	..	..	..	none	none
	Erysipelas	..	..	..	19	none
Total					53	6

The deaths in the other classes were as follows :—

					Deaths.
Measles	..	..	..	..	none
Whooping Cough	..	..	..	..	2
Diarrhœa and Dysentery	..	..	..	..	none
Rheumatic Fever	..	..	..	..	none
Total					2

The Infectious Disease (Notification) Act, 1889, came into operation in this district on February 2, 1891.

The prevalence in each quarter of each notifiable disease is shown in the following table :—

			1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.
Small-pox	..	..	—	—	—	—	—
Scarlatina	..	..	5	—	—	1	6
Diphtheria	..	..	2	—	20	6	28
Enteric Fever	..	..	—	—	—	—	—
Puerperal Fever	..	..	—	—	—	—	—
Erysipelas	..	..	8	2	5	4	19
Total..			15	2	25	11	53

The WATER SUPPLY and DRAINAGE are in the same condition as described in the reports for 1891 and 1892.

### SYSTEMATIC INSPECTION.

No. of Houses visited	..	..	..	..	320
No. of Nuisances reported	..	..	..	..	185
No. of Nuisances abated	..	..	..	..	185
No. of Notices served	..	..	..	..	80
Houses cleansed and disinfected	..	..	..	..	40
Houses cleansed and lime washed	..	..	..	..	80
New closets erected	..	..	..	..	35
Old closets converted	..	..	..	..	20
Wells sunk	..	..	..	..	12
Wells cleansed	..	..	..	..	35
Samples of water collected for analysis	.	..			20
No. of infectious cases removed to Isolation Hospital					none
Water certificate granted for new house	..	..			1
Overcrowding case reported	..	..	..		1
Overcrowding case abated	..	..	..	..	1

### MARGARINE ACT.

Very little margarine is sold here by the grocers, and where it can be obtained the regulations of the Act have been complied with. There seems to be no demand for this substance on the part of the scattered agricultural population.

### BAKEHOUSES.

These have been often inspected, and they have been well kept. There is no bakehouse on a large scale, and the chief duty is to see that they are frequently cleansed and lime washed. In each case there is a good amount of light and air, and in no case is there any drain within the building.

### COWSHEDS AND DAIRIES.

These are in most cases very well kept, care being taken that there is an ample supply of good water, plenty of light and ventilation, frequent removal of refuse and cleansing of the walls and floors.

### SLAUGHTER HOUSES.

These are very well kept as regards cleanliness and removal of refuse. In many instances animals are only killed once or twice a week, so there is no difficulty in keeping them clean and tidy. Each slaughter house is often lime washed, and the blood is generally removed at once for use in a garden.

No proceedings were taken before the Magistrates during the year.

There is one common lodging-house in the district and this has been kept clean.

No cases occurred in which it was necessary to condemn meat or any other article of food.

### RAINFALL.

The amount of rainfall during the year was taken daily by the Rev. C. Holland, Petworth Rectory, who has kindly allowed me to use his tables :—

Month.	Total depth in inches.	No. of rainy days.	Rainfall in 1893.
January .....	5·80	21	2·21
February .....	2·14	16	3·83
March .....	2·03	13	0·63
April .....	2·68	17	0·06
May .....	1·66	9	0·64
June .....	2·06	9	2·43
July .....	5·83	17	3·47
August .....	2·08	15	0·97
September .....	3·01	11	2·11
October .....	4·21	18	4·78
November .....	6·70	15	3·14
December .....	2·51	12	4·29
Total .....	40·71	173	28·56

INQUESTS were held in four cases :—Male, 60 years, suicide by drowning ; male, 19 months, bronchitis ; male, 2 months, inanition consequent upon premature birth ; female, 31 years, syncope and asphyxia.

There were two deaths returned as not certified in the North Sub-district :—Female, 75 years, pleurisy and disease of the heart ; female, 16 days, a fit.



# PETWORTH RURAL SANITARY DISTRICT.

TABLE 1.—Showing the Deaths at various groups of ages in the fourteen years, 1881-94.

Year.	At all ages.	Under 1 Year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
1881-85... ..	749	109	57	34	39	222	288
1886-90... ..	754	102	47	32	39	226	308
1891 ... ..	153	30	17	8	7	30	61
1892 ... ..	163	18	7	6	4	55	73
1893 ... ..	129	17	6	8	6	48	44
1894 ... ..	116	13	6	6	2	29	60
Total...	2,064	289	140	94	97	610	834

# PETWORTH RURAL SANITARY DISTRICT.

TABLE 2.—Showing the Deaths in the nineteen years, 1876-94, from various causes.

Year.		Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza.	Total.
						Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.								
1876-80	...	1	6	25	—	—	6	—	—	4	—	—	4	8	6	3	—	63
1881-85	...	—	1	10	—	—	5	—	—	—	—	4	—	7	6	1	—	34
1886-90	...	—	2	14	—	—	7	—	—	—	—	2	4	8	6	—	—	43
1891	...	—	—	2	—	—	—	—	—	—	—	—	—	8	—	—	1	11
1892	...	—	—	4	—	—	—	—	—	—	—	—	—	3	—	—	16	23
1893	...	1	—	—	—	—	1	—	—	—	—	—	—	3	—	—	3	8
1894	...	—	—	6	—	—	—	—	—	—	—	—	—	2	—	—	6	14
Total...		2	9	61	—	—	19	—	—	4	—	6	8	39	18	4	26	196

## PETWORTH RURAL DISTRICT.

TABLE 3.—Showing the Deaths and Death-rate from all causes and from various causes in the nineteen years, 1876-94.

PERIOD.	Deaths during the years 1876-94 from					Mean Annual Death-rate per 100,000 living from					
	Population in middle of period.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.
1876-80	9,800	785	63	76	138	54	1,609	129	155	283	110
1881-85	9,600	749	34	69	126	76	1,572	71	144	264	159
1886-90	9,550	754	43	70	117	83	1,579	90	146	245	174
1891	9,431	153	10	13	31	15	1,622	106	138	329	159
1892	9,420	163	7	11	28	18	1,730	74	117	297	191
1893	9,410	129	5	15	17	15	1,371	53	159	181	159
1894	9,400	116	8	3	20	14	1,234	85	32	213	149



(A)—Table of DEATHS during the Year 1894, in the Petworth Rural

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.  (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)	1	2	3
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and up-wards. (h)		Small Pox. .....	Scarlatina. .....	Diphtheria. .....
North Sub-district .....	47	6	2	2	—	13	24	Under 5 ..... 5 upwards.			1 ..... 3
Petworth Parish ..	30	2	3	—	—	8	17	Under 5 ..... 5 upwards.			2
Rest of South Sub-district ..	28	4	—	3	2	5	14	Under 5 ..... 5 upwards.			
Petworth Workhouse ..	4	1	1	—	—	2	—	Under 5 ..... 5 upwards.			
Wisborough Green Workhouse	6	—	—	—	—	1	5	Under 5 ..... 5 upwards.			
Petworth Cottage Hospital ...	1	—	—	1	—	—	—	Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
TOTALS.....	116	13	6	6	2	29	60	Under 5 ..... 5 upwards.			1 ..... 5

The subjoined numbers have also to be taken into

Deaths occurring outside the District among persons belonging thereto.....								Under 5 ..... 5 upwards.			
Deaths occurring within the District among persons not belonging thereto...								Under 5 ..... 5 upwards.			

### District, classified according to Diseases, Ages, and Localities.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN  
UNDER FIVE YEARS OF AGE.

4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Membranous Croup.	FEVERS.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever.	Ague.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All Other Diseases.	TOTAL.
	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.													
									1					1			5	8
													2	5	5		24	39
														1			4	5
													1	4	3		15	25
														1			3	4
									1					7	5	1	10	24
																	2	2
														1	1		—	2
																	—	—
																	6	6
																	—	—
																	1	1
									1					3			14	19
									1				3	17	14	1	56	97

account in judging of the above records of mortality.

[illegible]



## (B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES

Officer of Health, during the year 1894, in the PETWORTH Rural

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICK- COMING TO THE KNOWLEDGE OF					
	Census 1891.	Esti- mated to mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.	
(a)	(b)	(c)	(d)	(e)					Typhus.	Enteric or Typhoid.
North Sub-district .....	3,983	3,960	96	Under 5 ..... 5 upwards.		1 ..... 4	4 ..... 17			
Petworth Parish .....	2,831	2,817	64	Under 5 ..... 5 upwards.			1			
Rest of South Sub-district ...	2,545	2,560	64	Under 5 ..... 5 upwards.		1	4			
Petworth Workhouse .....	33	30	3	Under 5 ..... 5 upwards.						
Wisborough Green Workhouse	36	30		Under 5 ..... 5 upwards.			2			
Petworth Cottage Hospital ..	3	3		Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
TOTALS .....	9,431	9,400	227	Under 5 ..... 5 upwards.		1 ..... 5	4 ..... 24			



OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

NESS IN EACH LOCALITY, OF THE MEDICAL OFFICER HEALTH.							NUMBER OF SUCH CASES REMOVED FROM THEIR HOMES IN THE SEVERAL LOCALITIES FOR TREATMENT IN ISOLATION HOSPITAL.												
7	8	9	10	11	12	13	1	2	3	4	5	6	7	8	9	10	11	12	13
FEVERS.			Cholera.	Erysipelas.			Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.					Cholera.	Erysipelas.		
Continued.	Relapsing.	Puerperal.									Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.				
				2															
				13															
				1								H							
				2															
				1															
				2															
				17															

(The “ H ” shows where the Infectious Hospital is.)

**THAKEHAM**  
**RURAL SANITARY AUTHORITY.**

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## RURAL SANITARY DISTRICT OF THAKEHAM.

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The population in this registration district was 7,765 at the census of 1841, and 7,434 in 1851; chiefly owing to alteration in area, it rose to 8,036 in 1861, since 1871 there has been a steady decline in the numbers living.

The following figures relate to the present rural sanitary area which is co-extensive with the registration district:

	1861.	1871.	1881.	1891.
Area in Statute Acres ..	—	40,025	40,636	40,636
Number of Inhabited Houses..	1,590	1,689	1,652	1,610
„ Uninhabited „ ..	64	79	131	113
Population .. .. .	8,036	8,335	8,285	8,049
Males .. .. .	4,121	4,274	4,247	4,194
Females .. .. .	3,915	4,061	4,038	3,855

The above figures show that the population in this district is nearly stationary; the males, as is usual in rural areas, exceed the females, and there is an excess of aged people.

The chief occupation is agriculture, but many are also engaged in fruit growing, for which produce a market is found in Brighton and Worthing.

The following tables show the population in each parish over a term of thirty years, and the deaths in each parish from all causes and from various causes during the last twenty years; few unions, perhaps could show less change in the time. Building operations are seldom carried on, except when a new house replaces an old one. The number of uninhabited houses is less now than in 1881, but much higher than it was in the previous decades:—



	HOUSES, 1891.			POPULATION.					
	Inhabited.	Un- inhabited.	Building.	Persons, 1861.	Persons, 1871.	Persons, 1881.	Persons, 1891.	Males, 1891.	Females, 1891.
PULBOROUGH SUB-DISTRICT:—									
North Stoke ..	21	—	—	58	95	103	100	59	41
Amberley ..	114	5	—	456	535	570	525	288	237
Rackham ..	29	1	—	194	151	161	134	72	62
Greatham ..	12	—	—	51	60	59	66	40	26
Hardham ..	23	—	—	87	117	101	124	68	56
Cold Waltham ..	83	13	—	447	426	389	338	168	170
Wiggonholt ..	7	—	—	34	39	38	52	29	23
Pulborough ..	380	31	2	1,852	1,855	1,808	1,787	905	882
West Chiltington ..	144	13	2	668	701	664	620	352	268
WASHINGTON SUB-DISTRICT:—									
Parham ..	12	2	—	71	65	88	58	33	25
Storrington ..	246	17	—	1,104	1,184	1,351	1,293	633	660
Sullington ..	32	5	—	241	159	200	212	105	107
Thakeham ..	88	7	—	559	631	534	486	274	212
Warminghurst ..	16	2	—	106	140	97	70	37	33
Ashington ..	47	2	—	234	277	213	219	110	109
Wiston ..	64	2	—	311	311	357	352	189	163
Washington ..	142	8	—	908	908	844	838	438	400
Findon ..	150	5	2	655	681	708	775	394	381

PARISH.	DEATHS FROM ALL CAUSES IN THE YEARS										Total in Twenty Years.	1876-80.				1881-85.				1886-90.					
	1886-90					1881-85						Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.	Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.	Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.		
	1875	1876-80	1881-85	1886-90	1891	1892	1893	1894																	
North Stoke	5	7	10	5	1	1	3	34	1	—	—	—	3	3	1	—	—	—	—	1	—	—	—	—	1
Amberley	16	53	44	53	9	2	6	199	8	3	11	5	4	10	5	—	—	—	—	5	—	—	—	—	5
Rackham ..	4	17	14	7	2	—	5	57	2	2	1	—	—	2	—	—	—	—	—	1	—	—	—	—	1
Greatham	1	2	1	6	—	—	—	13	—	—	2	—	—	1	—	—	—	—	—	1	—	—	—	—	1
Hardham ..	2	8	7	5	1	2	3	33	—	—	2	—	—	2	—	—	—	—	—	1	—	—	—	—	1
Cold Waltham	6	37	38	35	7	4	3	142	2	9	2	2	—	5	2	—	—	—	3	1	—	—	—	—	2
Wiggonholt	1	1	2	1	—	1	6	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pulborough	37	142	134	135	35	31	—	593	14	17	17	12	14	18	11	6	—	14	18	—	3	—	—	—	—
West Chiltington	15	57	40	46	11	8	7	198	5	6	6	2	5	6	2	—	—	5	6	11	7	3	1	—	—
Parham ..	1	6	5	6	—	2	—	22	—	—	2	—	—	2	—	—	—	—	1	—	—	—	—	—	—
Storrington	16	84	115	102	17	15	22	386	9	10	27	12	9	22	12	5	—	11	22	9	1	13	2	—	36
Sullington	11	15	11	7	3	4	3	55	5	—	3	1	5	3	6	3	—	—	2	1	—	—	—	—	9
Thakeham	8	37	34	28	2	3	13	131	5	—	6	2	5	13	8	—	—	—	2	2	—	—	—	—	2
Warminghurst	3	16	4	2	3	1	3	32	4	—	1	1	4	1	1	—	—	—	1	1	—	—	—	—	6
Ashington	10	25	18	22	7	2	6	95	2	2	9	2	2	4	1	—	—	4	8	1	—	—	—	—	—
Wiston ..	4	19	22	18	6	5	4	80	2	—	4	1	2	2	1	—	—	3	2	5	—	—	—	—	4
Washington	16	72	42	59	15	17	13	243	8	—	9	5	2	2	4	—	—	—	11	8	—	—	—	—	2
Findon ..	13	53	42	38	7	12	5	188	6	5	9	—	6	9	9	1	—	6	8	4	4	3	5	3	3
Total ..	169	651	583	575	126	121	136	2,507	73	1	114	45	13	63	105	62	16	51	62	62	16	51	114	114	114

## BIRTHS AND BIRTH-RATE.

During the year 1894 the births of 188 children were registered ; of these 101 were male, and 87 were female.

Estimating the population in the middle of the year at 8,000, the birth-rate was equal to 23·5 per 1,000 persons living, a rate lower than that recorded in any year previous to 1892.

The births and birth-rate during the past ten years have been as follows :—

Year.	Births.	Birth-rate.	Year.	Births.	Birth-rate.
1885 ..	261 ..	31·6	1890 ..	210 ..	25·9
1886 ..	220 ..	26·6	1891 ..	223 ..	27·7
1887 ..	246 ..	29·7	1892 ..	185 ..	23·0
1888 ..	230 ..	28·0	1893 ..	207 ..	25·9
1889 ..	232 ..	28·4	1894 ..	188 ..	23·5

The mean number of births is 220, and the mean birth-rate is 27·0 per 1,000 of population.

In England and Wales the birth-rate during the year was 29·6 per 1,000 persons living, a rate 2·0 per 1,000 below the mean rate in the ten years, 1884-93.

The following table shows the births and birth-rate in each locality during the past four years :—

							Births.				Birth-rate.						
							1891.	1892.	1893.	1894.							
							1891.	1892.	1893.	1894.							
Amberley Parish	..	14	14	18	9	..	26·6	27·0	34·6	17·0							
Pulborough Parish	..	48	50	61	51	..	26·1	27·9	34·1	28·3							
Rest of Pulborough																	
Sub-district	..	33	29	37	34	..	23·3	20·3	26·0	24·1							
Storrington Parish	..	32	31	24	37	..	24·7	24·4	19·0	29·3							
Washington Parish	..	24	15	17	19	..	28·6	17·8	20·2	22·3							
Rest of Washington																	
Sub-district	..	72	46	50	38	..	33·0	21·1	23·0	17·6							
Total ..		223	185	207	188	..	27·7	23·0	25·9	23·5							

There has been a steady decline in the birth-rate during the last twenty years ; young people leave the villages and find employment in large towns, for it is useless for them to remain at home, where there can be no demand for work.

## GENERAL MORTALITY.

There were 136 deaths registered in this district during the year 1894.

Estimating the population in the middle of the year at 8,000, the death-rate was equal to 17·0 per 1,000 persons living.



In country places throughout England and Wales the mortality in 1894 was equal to 15·6 per 1,000 of population.

There were 12 deaths in Thakeham Workhouse, and these have been distributed among the several parishes whence each inmate came, viz.:—Cold Waltham, 1; Pulborough, 3; West Chiltington, 1; Storrington, 2; Thakeham, 2; Warminghurst, 1; and Washington 2; in all 12.

The variations in the death-rate during the past ten years have been as follows :—

Year.	Deaths.	Death-rate.	Year.	Deaths.	Death-rate.
1885 ..	119 ..	14·4	1890 ..	101 ..	12·4
1886 ..	118 ..	14·3	1891 ..	126 ..	15·6
1887 ..	123 ..	14·9	1892 ..	146 ..	18·2
1888 ..	106 ..	12·9	1893 ..	121 ..	15·1
1889 ..	127 ..	15·5	1894 ..	136 ..	17·0

Thus there have been during the above period 1,203 deaths and a mean mortality of 15·0 per 1,000. During the same period there were 2,202 births, so that the natural increase of population by excess of births over deaths was 999. The recent census returns, however, show that there has been a *decrease* of 236, so that a large number of persons must have left this district during the past decade.

In each locality the deaths and death-rate for the past four years are here shown :—

	Deaths.					Death-rate.			
	1891.	1892.	1893.	1894.		1891.	1892.	1893.	1894.
Amberley Parish ..	9	9	9	6	..	17·1	17·3	17·3	11·5
Pulborough Parish ..	35	42	31	37	..	19·5	23·5	17·3	20·5
Rest of Pulborough Sub-district ..	22	34	23	24	..	15·3	23·8	16·2	17·0
Storrington Parish ..	17	15	15	22	..	13·1	11·8	11·9	17·0
Washington Parish ..	15	9	17	13	..	17·9	10·7	20·2	15·3
Rest of Washington Sub-district ..	28	37	26	34	..	12·8	17·0	12·0	15·7
Total ..	126	146	121	136		15·6	18·2	15·1	17·0

In each parish the deaths in 1894 were thus distributed :—

North Stoke ..	..	3	..	Parham ..	..	none
Amberley ..	..	6	..	Storrington ..	..	22
Rackham ..	..	5	..	Sullington ..	..	3
Greatham ..	..	none	..	Thakeham ..	..	13
Hardham ..	..	3	..	Warminghurst ..	..	3
Cold Waltham ..	..	6	..	Ashington ..	..	6
Wiggonholt ..	..	none	..	Wiston ..	..	4
Pulborough ..	..	37	..	Washington ..	..	13
West Chiltington ..	..	7	..	Findon ..	..	5
Total ..	..	136.				

### INFANT MORTALITY.

The *infant mortality* is here given as measured by the number of deaths under one year of age to the total number of births in the year :—

	Births.	Deaths under one year.	Ratio to 1,000 Births.
Amberley Parish .. .. .	9	1	111
Pulborough Parish .. .. .	51	4	78
Rest of Pulborough Sub-district ..	34	2	59
Storrington Parish .. .. .	37	none	—
Washington Parish .. .. .	19	3	158
Rest of Washington Sub-district ..	38	6	158
Total .. .. .	188	16	85

The mean annual rate in the previous six years 1888-93 was 85 per 1,000 registered births.

In England and Wales the proportion of deaths under one year of age to registered births was 137 per 1,000, the mean proportion in the preceding ten years having been 147.

### ZYMOTIC MORTALITY.

The deaths were 11 in number, of which nine were among notifiable diseases, and two in the other class. The rate of mortality was therefore equal to 1.37 per 1,000.

	Cases.	Deaths.
Small-pox .. .. .	none	none
Scarlatina .. .. .	9	none
Diphtheria .. .. .	25	7
Membranous Croup .. .. .	none	none
Fevers. { Typhus .. .. .	none	none
{ Enteric .. .. .	3	2
{ Continued .. .. .	none	none
{ Relapsing .. .. .	none	none
{ Puerperal .. .. .	none	none
Cholera .. .. .	none	none
Erysipelas .. .. .	4	none
Total ... .. .	41	9

The deaths in the other classes were as follows :—

	Deaths.
Measles .. .. .	none
Whooping Cough .. .. .	1
Diarrhoea and Dysentery .. .. .	none
Rheumatic Fever .. .. .	1
Total .. .. .	2

The Infectious Disease (Notification) Act, 1889, came into operation on January 1st, 1890, and the number of cases notified were 36 in 1890, 34 in 1891, 21 in 1892, 43 in 1893, and 41 in 1894, or a mean number of 35 per year in a population of 8,000.

The prevalence in each quarter of each notifiable disease is shown in the following table :—

	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.
Scarlatina .. ..	1	5	1	2	9
Diphtheria .. ..	2	—	10	13	25
Enteric Fever .. ..	1	1	1	—	3
Erysipelas .. ..	2	1	—	1	4
Total..	6	7	12	16	41

## WASHINGTON.

The following report was made by the Sanitary Inspector :—

The water supply in the Parish is derived from 71 deep wells, ranging from 20ft. to 180ft. deep; 12 rainwater tanks, 6ft. to 18ft. deep, 4ft. to 18ft. diameter; and from 3 small dipping holes.

The means adopted for raising the water from the deep wells are, 2 deep well force-pumps worked with a steam engine, 24 with the ordinary force-pumps, 44 with windlass, and 2 with chain buckets, from the rainwater tanks, 2 force-pumps, 7 Jack pumps, and 3 windlass.

The water obtained from the three dipping holes is discoloured and in heavy rains quite unfit for drinking purposes.

There are 17 broken curbs, 3 broken pumps, and 5 wells where the water is discoloured and full of sand, dirt, and insects; and one house where the occupiers obtain their drinking water from a stream.

The closet accommodation consists chiefly of the kind known as the privy; 142 houses are provided with 103 of this kind, 11 with 14 earth-closets, 1 with a long hopper, 4 with 14 wash-outs, and 2 with 2 pan and containers.

The closets are built attached to the house and at distances up to 120ft., 53 privies are sealed and in good condition; 50 have open cesspits without any vault or coverings, which allows rain and soakage water to find its way into the large holes and is very offensive; the 14 pails are well kept, care being taken to use earth or dry ash dust; the long hopper closet is very foul as the flush pipe is broken; 14 wash-outs have small flush tanks, the soilpipes being fixed on the external walls, disconnected by a trap and ventilated above the eaves. The 2 pan and containers are very defective closets as they become very foul, and it is impossible to flush them properly; one is out of repair and the soilpipes are not ventilated or trapped.



There are 21 gully traps, 4 bell traps, 3 grease traps, and 6 disconnecting traps.

The drainage from most of the houses is the open brick channel which flows into the street drains.

There are two houses which require limewashing, and 3 broken roofs, and one house unfit for human habitation.

### RECOMMENDATIONS.

To remedy the defects which were found the following suggestions were made :—

That the owners of the three houses where the dipping holes exist be called upon under Sec. 6, P. H. Water Act, 1878, to provide a good and wholesome supply of drinking water for the use of the occupiers; to repair the broken curbs of wells and pumps, and in 5 cases where the water is discoloured and muddy to clean out the wells.

The cesspits and large holes used for the reception of fœcal matter from the 50 closets should be cleansed and filled up, and a small brick cesspit should be constructed, not exceeding the following dimensions: depth 12ft., length and width 3ft.; the cesspit should be built entirely above ground, with brick riser to carry the seat: and hinged doors, to facilitate the cleansing of the cesspit; or the pail system should be adopted, especially where the closets are built on the external wall of the house.

The long hopper should be removed, and a washdown pan and trap with a  $1\frac{1}{4}$  in. flush pipe be fixed.

The pan and container closets, being very defective, should be removed and washdowns fixed with the soilpipe on the external wall carried above the eaves of house for ventilation, and a fresh air disconnecting trap should be always fixed on the house side of cesspools, so as to prevent siphonage of traps, and to ventilate the soilpipe.

The 4 bell traps should be removed and earthenware gullies fixed instead.

The 3 broken roofs should be repaired and 2 houses limewashed.

The house which is in such a state as to be unfit for human habitation, should be put in proper repair or the owner should be served with a notice to close the house.

### SYSTEMATIC INSPECTION.

In addition to the above, the following is a summary of work done :—

Nuisances reported .. .. .	84
Nuisances abated without notice .. .. .	67
Nuisances abated with notice .. .. .	10
Houses reported unfit for habitation .. .. .	2
Houses closed .. .. .	2
Houses cleansed and limewashed .. .. .	18
Houses disinfected .. .. .	21
Wells cleansed .. .. .	8
Closets altered and improved .. .. .	7
Closets altered and the earth system used (pails) ..	11
New closets built .. .. .	22
New houses built .. .. .	—
Water certificates granted .. .. .	2
Cesspools filled up .. .. .	30
S. and P. traps fixed .. .. .	31
Top of wells repaired .. .. .	40
Samples of water analysed .. .. .	5

### SCAVENGING AND CLEANSING.

In the Parish of Storrington the contractor collects the ashes and empties all pail closets every Saturday morning. During the year he has emptied and removed the contents of 68 ash pits, 80 cesspools, 49 privies, and 2,020 pails.

### COWSHEDS AND DAIRIES.

The sixteen cowsheds are in most cases well kept, care being taken that there is good water, ventilation, light, and frequent limewashing.

### SLAUGHTER HOUSES.

The twelve slaughter houses are kept in a fair condition.

### BAKEHOUSES.

The fifteen bakehouses have been often inspected, and they are kept in a clean condition.

INQUESTS were held in seven cases:—Male, 68 years, accidentally killed by a cow; female, 51 years, heart disease; male, 11 weeks, natural causes, consumption of bowels; male, 10 weeks, inflammation of the lungs; male, 64 years, accidentally suffocated in a ditch; male, 3 years, convulsions, gastric irritation; male, 1 day, congestion of the brain.

There were no deaths returned as “not certified” during the year.

## THAKEHAM RURAL SANITARY DISTRICT.

TABLE 1.—Showing the Deaths at various groups of ages in the fourteen years, 1881-94.

Year.	At all ages.	Under 1 Year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
1881-85... ..	583	80	58	30	27	182	206
1886-90... ..	575	85	56	23	28	166	217
1891 ... ..	126	25	6	5	6	33	51
1892 ... ..	146	16	7	6	5	50	62
1893 ... ..	121	18	9	10	11	35	38
1894 ... ..	136	16	7	13	8	35	57
Total...	1,687	240	143	87	85	501	631

TABLE 2.—Showing the Deaths in the nineteen years, 1876-94, from various causes.

Year.	Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza.	Total.
					Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.								
1876-80 ...	—	11	1	—	1	2	—	—	—	—	3	4	39	11	1	—	73
1881-85 ...	—	8	13	—	1	4	—	—	2	—	5	1	5	5	1	—	45
1886-90 ...	1	5	16	—	—	6	—	—	4	—	4	3	14	9	—	4	66
1891 ...	—	1	—	—	—	1	—	—	—	—	—	—	2	2	1	1	8
1892 ...	—	—	2	—	—	—	—	—	—	—	—	1	3	1	1	20	28
1893 ...	—	—	4	—	—	4	—	—	—	—	1	—	4	2	—	1	16
1894 ...	—	—	7	—	—	2	—	—	—	—	—	—	1	—	1	1	12
Total...	1	25	43	—	2	19	—	—	6	—	13	9	68	30	5	27	248





(A)—Table of DEATHS during the Year 1894, in the Thakeham Rural Sanitary District.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.										
	At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.		1	2	3
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	Small Pox.	Scarlatina.	Diphtheria.
Amberley Parish .....	6	1	—	—	—	3	2	Under 5 ..... 5 upwards.			
Pulborough Parish .....	34	4	1	7	3	5	14	Under 5 ..... 5 upwards.			1 ..... 4
Rest of Pulborough Sub-district	22	2	2	2	—	4	12	Under 5 ..... 5 upwards.			1
Storrington Parish .....	20	—	3	2	3	6	6	Under 5 ..... 5 upwards.			
Washington Parish .....	11	3	—	—	—	3	5	Under 5 ..... 5 upwards.			
Rest of Washington Sub-district	31	6	1	1	2	10	11	Under 5 ..... 5 upwards.			1
Thakeham Workhouse.....	12	—	—	1	—	4	7	Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
TOTALS.....	136	16	7	13	8	35	57	Under 5 ..... 5 upwards.			1 ..... 6
The subjoined numbers have also to be taken into consideration.											
Deaths occurring outside the District among persons belonging thereto.....								Under 5 ..... 5 upwards.			
Deaths occurring within the District among persons not belonging thereto...								Under 5 ..... 5 upwards.			





(B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF SICKNESS, AS REPORTED BY THE  
Officer of Health, during the year 1894, in the THAKEHAM Rural Sanitary District.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICK COMING TO THE KNOWLEDGE OF THE OFFICER OF HEALTH.					
	Census 1891.	Esti- mated to mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.	
(a)	(b)	(c)	(d)	(e)					Typhus.	Enteric or Typhoid
Amberley Parish .....	525	520	9	Under 5 ..... 5 upwards.						
Pulborough Parish .....	1,787	1,800	51	Under 5 ..... 5 upwards.						
Rest of Pulborough Sub-district	1,434	1,410	34	Under 5 ..... 5 upwards.						
Storrington Parish .....	1,293	1,260	37	Under 5 ..... 5 upwards.						
Washington Parish .....	838	850	19	Under 5 ..... 5 upwards.						
Rest of Washington Sub-district	2,095	2,090	38	Under 5 ..... 5 upwards.						
Thakeham Workhouse .....	78	70	—	Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
TOTALS .....	8,049	8,000	188	Under 5 ..... 5 upwards.						

OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

[illegible]

EAST PRESTON  
RURAL SANITARY AUTHORITY.

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## RURAL SANITARY DISTRICT OF EAST PRESTON.

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The population in this registration district was 17,568 at the census of 1841, and 18,746 in 1851; owing chiefly to changes in the area, it declined to 17,423 in 1861; after which period it rose to 21,579 in 1871, to 26,364 in 1881, and to 32,394 in 1891. These figures, however, include the urban districts of Worthing and Littlehampton, which rapidly increased during this period, and Arundel with its almost stationary population. The following figures show only the changes in the rural part of the district.

	1861.	1871.	1881.	1891.
Area in Statute Acres ..	—	30,520	30,696	30,637
Number of Inhabited Houses..	1,355	1,467	1,662	1,805
„ Uninhabited „ ..	45	77	87	75
Population .. .. .	6,716	7,675	8,025	8,692
Males .. .. .	3,450	3,900	4,065	4,371
Females .. .. .	3,266	3,775	3,960	4,321

The males exceed the females but to a less extent now than in former periods as some parts of the district are semi-urban in character.

West Tarring has increased rapidly during the last decade, and it now forms a suburb of Worthing, with which, before long, a portion of the parish should be incorporated.

That portion of Lyminster, known as Wick, forms a suburb of Littlehampton, and it contains a numerous and poor population.

The chief occupation is agriculture, but a great many are also employed in fruit growing, or in the cultivation of gardens.

The following tables show the population in each parish; and also the deaths in each parish from all causes and from various causes over a long term of years:—

	Houses, 1891.			POPULATION.					
	Inhabited.	Un-inhabited.	Building.	Persons, 1861.	Persons, 1871.	Persons, 1881.	Persons, 1891.	Males, 1891.	Females, 1891.
WORTHING SUB-DISTRICT :—									
Broadwater (1) ..	220	6	—	661	1,288	(1) 841	1,016	483	533
Heene (2) ..	..	..	—	140	151	156	(2) ..	..	..
West Tarring ..	213	12	7	606	656	733	1,035	544	491
Clapham ..	51	3	—	249	246	239	270	150	120
Durrington ..	33	6	—	171	165	181	153	82	71
Goring ..	129	4	—	535	464	528	561	277	284
Ferring ..	54	7	—	253	267	232	226	111	115
LITTLEHAMPTON SUB-DISTRICT :—									
Kingston ..	12	1	—	45	27	34	43	18	25
East Preston ..	57	4	—	320	331	420	414	212	202
Angmering (part of) ..	183	6	—	953	1,041	848	883	441	442
Lyminster (part of) ..	276	5	—	801	1,071	1,178	1,320	699	621

Rustington	..	..	91	5	1	340	359	360	434	190	244
Climping ..	..	..	54	6	..	331	261	270	251	138	113
Ford ..	..	..	20	..	..	82	73	100	102	48	54
ARUNDEL SUB-DISTRICT:—											
Tortington	..	..	58	1	3	112	138	165	288	134	154
Lymminster (part of) (3) ..	..	..	81	3	..	..	..	(3) 409	373	169	204
Poling ..	..	..	43	..	..	203	174	179	178	84	94
Angmering (part of) (3)	..	..	27	1	..	..	..	(3) 135	131	72	59
Patching ..	..	..	55	2	..	275	268	274	270	141	129
Warningcamp	..	..	34	3	..	107	159	128	159	81	78
Burpham..	..	..	52	..	..	256	304	286	280	146	134
South Stoke	..	..	24	..	..	111	108	133	131	66	65
Houghton	..	..	38	..	..	165	189	196	174	85	89

(1) Part of Broadwater transferred to Worthing in 1875.

(2) Rural part of Heene transferred to the Borough of Worthing in 1890.

(3) On October 1st, 1883, parts of the parishes of Angmering and Lymminster were transferred from the Sub-district of Littlehampton to that of Arundel.





Rustington	6	23	29	21	2	3	6	6	96	—	—	3	2	1	—	2	6	2	—	—	1
Climping ..	6	9	28	10	4	6	5	5	73	1	—	1	1	4	3	1	2	—	—	1	2
Ford ..	2	5	3	5	—	4	2	—	21	—	—	—	—	1	1	1	—	1	—	—	1
Tortington	4	15	11	13	1	6	4	3	57	2	—	—	—	—	—	—	1	2	1	1	2
Lyminster (N.) ..	—	—	16	25	3	8	5	1	58	—	—	—	—	1	—	5	1	6	3	—	4
Poling ..	4	27	20	9	3	6	5	1	75	1	—	2	5	2	—	4	2	1	—	1	—
Angmering (N.) ..	—	—	3	7	—	2	—	1	13	—	—	—	—	—	—	—	1	1	—	1	—
Patching ..	4	19	25	18	6	3	3	2	78	2	—	3	3	—	—	—	3	1	1	—	1
Warningcamp	5	—	6	10	1	1	3	—	26	—	—	—	—	1	—	—	1	—	—	—	2
Burpham..	3	17	18	24	3	5	1	3	74	1	—	—	2	1	—	1	2	1	—	4	2
South Stoke	1	12	10	11	3	3	3	4	47	1	—	2	2	—	—	1	—	2	1	—	1
Houghton	2	17	11	15	4	3	3	2	57	1	—	1	3	—	—	2	2	1	—	2	2
Total ..	138	634	603	566	123	143	145	124	2,476	62	8	68	81	55	17	54	84	54	13	44	92

## BIRTHS AND BIRTH-RATE.

During the year 1894 the births of 269 children were registered; of these 139 were male, and 130 were female.

Estimating the population in the middle of the year at 8,980, the birth-rate was equal to 30·0 per 1,000 persons living.

The births and birth-rate during the past ten years have been as follows :—

Year.	Births.	Birth-rate.	Year.	Births.	Birth-rate.
1885 ..	234 ..	27·5	1890 ..	204 ..	23·4
1886 ..	246 ..	28·8	1891 ..	244 ..	28·0
1887 ..	241 ..	28·1	1892 ..	204 ..	23·3
1888 ..	226 ..	26·2	1893 ..	260 ..	29·5
1889 ..	230 ..	26·5	1894 ..	269 ..	30·0

The mean number of births is 236, and the mean birth-rate is 27·1 per 1,000 of population.

In England and Wales the birth-rate during the year was 29·6 per 1,000 persons living, a rate 2·0 per 1,000 below the mean rate in the ten years, 1884-93.

The following table shows the births and birth-rate in each locality during the past four years :—

	Births.					Birth-rate.			
	1891.	1892.	1893.	1894.		1891.	1892.	1893.	1894.
Worthing Sub-district	93	81	113	111	..	28·5	24·5	33·8	32·6
Littlehampton Sub-district ..	110	83	103	102	..	31·7	24·0	29·8	29·3
Arundel Sub-district	41	40	44	56	..	20·7	20·0	22·0	26·7
Total ..	244	204	260	269	..	28·0	23·3	29·5	30·0

In the Arundel Sub-district there is a thinly scattered agricultural population with an excess of people at advanced periods of life; hence the birth-rate is low.

## GENERAL MORTALITY.

There were 135 deaths registered in this district during the year 1894, but from this number must be deducted the deaths of 13 persons belonging to urban areas, outside this district. Of these 13 persons, five came from Worthing, six from Littlehampton, and two from Arundel.

There were also nine other deaths in the Workhouse, and these have been distributed among the several parishes whence each inmate came, viz., Broadwater 3, West Tarring 2, Durrington 2, Angmering 1, Climping 1; in all 9.



There must be added the deaths of two persons in Worthing Infirmary, of whom one belonged to Durrington and one to Goring. The total number of deaths belonging to this district amounts therefore to 124.

Estimating the population in the middle of the year at 8,980, the death-rate was equal to 13·8 per 1,000 persons living.

In country districts throughout England and Wales the rate of mortality in 1894 was equal to 15·6 per 1,000 of population.

The variations in the death-rate during the past ten years have been as follows :—

Year.	Deaths.	Death-rate.	Year.	Deaths.	Death-rate.
1885 ..	132 ..	15·5	1890 ..	122 ..	14·0
1886 ..	106 ..	12·4	1891 ..	123 ..	14·1
1887 ..	114 ..	13·3	1892 ..	143 ..	16·3
1888 ..	108 ..	12·5	1893 ..	145 ..	16·5
1889 ..	116 ..	13·4	1894 ..	124 ..	13·8

The mean number of deaths is 123, and the mean death-rate is 14·2 per 1,000. During this decade there were 2,358 births, so that the natural increase of births over deaths was 1,125.

The actual increase at the last census was 817, but as Heene with its 150 people was transferred to Worthing, the real increase was 667.

The following table shows the deaths and death-rate in each locality during the past four years :—

	Deaths.					Death-rate.			
	1891.	1892.	1893.	1894.		1891.	1892.	1893.	1894.
Worthing Sub-district	50	65	63	54	..	15·3	19·7	18·9	15·9
Littlehampton Sub-district ... ..	49	41	55	53	..	14·1	11·9	15·9	15·2
Arundel Sub-district	24	37	27	17	..	12·1	18·5	13·5	8·1
Total ..	123	143	145	124		14·1	16·3	16·5	13·8

In each parish the deaths were thus distributed :—

Broadwater .. ..	19	..	Climping .. ..	5
West Tarring .. ..	18	..	Ford .. ..	none
Clapham .. ..	1	..	Tortington .. ..	3
Durrington .. ..	5	..	Lyminster (north) ..	1
Goring .. ..	9	..	Poling .. ..	1
Ferring .. ..	2	..	Angmering (north) ..	1
Kingston .. ..	none	..	Patching .. ..	2
East Preston .. ..	2	..	Warningcamp .. ..	none
Angmering (south) ..	14	..	Burpham .. ..	3
Lyminster (south) ..	26	..	South Stoke .. ..	4
Rustington .. ..	6	..	Houghton .. ..	2
Total .. ..	124			

## INFANT MORTALITY.

The *infant mortality* is here given as measured by the number of deaths under one year of age to the total number of births in the year :—

			Births.	Deaths under one year.	Ratio to 1,000 Births.
Worthing Sub-district	..	..	111	13	117
Littlehampton Sub-district	..	..	102	5	49
Arundel Sub-district	..	...	56	3	54
Total			269	21	78

The mean annual rate in the previous six years 1888-93 was 87 per 1,000 registered births.

In England and Wales the proportion of deaths under one year of age to registered births was 137 per 1,000 during the past year, the mean proportion in the preceding ten years having been 147.

## ZYMOTIC MORTALITY.

There were 3 deaths from zymotic disease in the case of those which are notifiable and there were 6 deaths in the other class where the number of cases cannot be obtained.

Adding the two classes together, there is a total of 9 deaths with a zymotic mortality of 1.0 per 1,000.

				Cases.	Deaths.
Fevers.	Small-pox	..	..	none	none
	Scarlatina	..	..	8	none
	Diphtheria	..	..	9	2
	Membranous Croup	..	..	1	none
	Typhus	..	..	none	none
	Enteric	..	..	9	1
	Continued	..	...	none	none
	Relapsing	..	..	1	none
	Puerperal	..	..	none	none
	Cholera	..	..	none	none
	Erysipelas	..	..	12	none
Total				40	3

In the other classes the deaths were as follows :—

			Deaths.
Measles	..	..	none
Whooping Cough	..	..	3
Diarrhœa and Dysentery	..	..	3
Rheumatic Fever	..	..	none
Total			6

The Infectious Diseases (Notification) Act, 1891, came into operation in this district on March 1st, 1891, and on the same day the Infectious Disease (Prevention) Act, 1890, also took effect.

On March 21st, 1891, the Public Health Acts Amendment Act, 1890, Part III, came into operation.

The prevalence in each quarter of each infectious disease is here shown:—

	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.
Scarlatina .. ..	3	—	3	2	8
Diphtheria .. ..	6	1	2	—	9
Membranous Croup	1	—	—	—	1
Enteric Fever ..	—	2	5	2	9
Relapsing Fever ..	—	—	—	1	1
Erysipelas .. ..	3	4	3	2	12
	—	—	—	—	—
Total..	13	7	13	7	40

The number of cases notified were 6 in 1891; 54 in 1892; 156 in 1893; and 40 in 1894.

### WATER SUPPLY.

During the year a water main was laid from the West Worthing Waterworks to a high spot on the Downs to the north of West Tarring, where a covered reservoir has been constructed. This will enable a constant supply in future to take the place of the intermittent supply in the areas of West Worthing and West Tarring. The dangers attending an intermittent supply with defective hydrants were detailed in my last annual report, and additional confirmation was given in the course of 1893, when enteric fever spread to West Tarring chiefly through the pollution of the public water supply. In West Tarring, most of the defective hydrants had been promptly removed, and they had been replaced by others of a far better construction, whereby pollution from surface water could not occur, but in West Worthing no alteration had been made.

### SEWAGE AND DRAINAGE.

No main works were undertaken during the year and the general system remains the same as before. West Tarring is the only place which has a main system and this, dealing only with a part of the village, is in connection with the Worthing system.

In nearly all the other parishes the houses are scattered, and each cottage has garden space on which any refuse matter could be utilised. On the whole there has been much improvement in recent years, and the sanitary surroundings of most of the houses are much better than at former periods.



Wick, however, still remains in a very bad state ; the water supply is derived from shallow wells and the gardens near the houses are full of cesspits whence the contents soak away and pollute the subsoil. This question has been often brought before the Authority, but nothing has yet been done.

### SCAVENGING AND CLEANSING.

The Parochial Committees of Broadwater and West Tarring meet frequently and they supervise the work of scavenging which is carried out by a contractor.

### BAKEHOUSES.

The fifteen bakehouses have been frequently inspected, and they have been well kept.

### SLAUGHTER HOUSES.

These are six in number, and they have been kept in good order, but they require frequent inspection to see that no nuisance arises.

### COWSHEDS AND DAIRIES.

The twenty-six cowsheds have been regularly inspected and kept clean ; no disease of any animals was recorded during the year.

There is no Common Lodging House in the district.

No Proceedings were taken before the magistrates during the year.

No Article of Food was condemned as unfit for use.

### SYSTEMATIC INSPECTION.

No. of Houses visited	..	..	..	..	530
No. of Nuisances reported	..	..	..	..	103
No. of Nuisances abated without notice	..	..	..	..	87
No. of Nuisances abated with notice	..	..	..	..	16
Houses cleansed and limewashed	..	..	..	..	27
Houses disinfected	..	..	..	..	12
Water certificates granted	..	..	..	..	32
Wells cleansed	..	..	..	..	5
New tube wells	..	..	..	..	4
Samples of water analysed	..	..	..	..	11
Samples of water polluted	..	..	..	..	2
Cases of overcrowding reported	..	..	..	..	3

Cases of overcrowding abated	..	..	..	3
Privies altered and improved	..	..	..	25
Drains taken up and relaid	..	..	..	13
House unfit for habitation..	..	..	..	1

During the year 1894 the district was regularly inspected, the more thickly populated parishes at least weekly, and the remainder at intervals of about a month ; consequently the nuisances that have existed have been of minor importance and short duration, and they have been generally abated upon calling the occupier's attention to them.

The sanitary condition of the parish of West Tarring is constantly improving, the modified forms of privy at several cottages have been converted into w.c.'s, with short hopper basins, flushed with syphon cisterns, and connected to the sewer. Some old and dilapidated cottages have been pulled down, and several new dwellings erected. The scavenging and ash collecting have been done satisfactorily.

In the parish of Broadwater the system of scavenging has been continued by the contractor under supervision, and no complaint has been received respecting the thoroughness and cleanliness of the work done, but some few complaints have been made of the unpleasant odours arising during the performance of the work. These unpleasant odours might be materially lessened if the occupiers would use more dry earth in the privies, and some form of liquid deodorant for the cesspools.

In the parishes of Lyminster and Angmering the old order of things remain, each occupier being responsible for the removal of house refuse, &c., and as there are several cottages with very small gardens, heaps of rubbish frequently accumulate near the dwellings, and shallow holes are dug in which soap suds and all liquid slops are poured, and closets are not emptied as frequently as could be desired in consequence of the expense entailed in carting the contents away. There can be no great improvement in the sanitary condition unless some form of scavenging or drainage is introduced. These remarks more particularly apply to the South Ward of the Parish of Lyminster.

No offensive trade is carried on in any part of the District.

On January 3rd, the Reading Room at West Tarring, which had been used as a temporary hospital, was disinfected, distempered, painted, and varnished.

INQUESTS were held in twelve cases :—Male, 41 years, suicide by hanging ; female, 4 years, scrofulous disease of the kidneys ; male, 47 years, suicide by placing himself in front of a train ; male, 66 years, suicide by strangulation ; male, about 50 years, found drowned ; male, 3 years, convulsions ; male, about 40 years, found drowned ; male, 19

months, enteritis ; male, 6 months, convulsions and teething ; female, newly born, found dead in a ditch ; male, 18 years, accidentally drowned while bathing ; male, 50 years, found dead.

There were two deaths returned as "not certified" during the year : Female, 5 minutes, prematurely born ; male, 65 years, Bright's disease.



## EAST PRESTON RURAL SANITARY DISTRICT.

TABLE 1.—Showing the Deaths at various groups of ages in the fourteen years, 1881-94.

Year.	At all ages.	Under 1 Year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
1881-85... ..	603	100	53	35	28	185	202
1886-90... ..	566	82	50	30	34	149	221
1891 ... ..	123	25	8	5	6	35	44
1892 ... ..	143	19	11	7	6	41	59
1893 ... ..	145	23	16	15	11	43	37
1894 ... ..	124	21	17	9	6	33	38
Total...	1,704	270	155	101	91	486	601

## EAST PRESTON RURAL SANITARY DISTRICT.

TABLE 2.—Showing the Deaths in the nineteen years, 1876-94, from various causes.

Year.		Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza.	Total.
						Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.								
1876-80	...	—	11	8	—	—	9	1	—	—	—	2	4	8	19	—	—	62
1881-85	...	—	8	17	—	—	1	—	—	1	—	2	9	8	7	2	—	55
1886-90	...	—	5	13	—	—	1	—	—	1	—	—	1	17	16	—	—	54
1891	...	—	—	—	—	—	2	—	—	—	—	2	2	2	2	—	4	14
1892	...	—	—	2	—	—	2	—	—	—	—	—	—	1	1	—	8	14
1893	...	—	1	3	2	—	22	—	—	—	—	—	2	3	5	—	1	39
1894	...	—	—	2	—	—	1	—	—	—	—	—	—	3	3	—	1	10
Total...	—	—	25	45	2	—	38	1	—	2	—	6	18	42	53	2	14	248

## EAST PRESTON RURAL SANITARY DISTRICT.

TABLE 3.—Showing the Deaths and Death-rate from all causes and from various causes in the nineteen years, 1876-94.

PERIOD.	Deaths during the years 1876-94 from					Mean Annual Death-rate per 100,000 living from					
	Population in middle of period.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.
1876-80	7,710	634	62	68	81	57	1,645	161	176	209	148
1881-85	8,330	603	55	54	84	62	1,452	133	130	201	149
1886-90	8,620	566	54	44	92	56	1,286	123	100	209	128
1891	8,712	123	10	8	23	10	1,412	114	92	263	114
1892	8,750	143	6	9	33	15	1,634	68	103	377	171
1893	8,800	145	38	14	19	9	1,648	432	159	216	102
1894	8,980	124	9	9	20	6	1,380	100	100	222	67



(A)—Table of DEATHS during the Year 1894, in the East Preston Rural

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.  (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)	1	2	3
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and up-wards. (h)		Small Pox. (j)	Scarlatina. (k)	Diphtheria. (l)
Worthing Sub-district .....	45	13	7	3	1	10	11	Under 5 ..... 5 upwards.			
Littlehampton Sub-district ...	51	5	9	6	4	10	17	Under 5 ..... 5 upwards.			2
Arundel Sub-district .....	17	3	1	—	1	7	5	Under 5 ..... 5 upwards.			
East Preston Workhouse .....	22	1	2	—	1	8	10	Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
TOTALS.....	135	22	19	9	7	35	43	Under 5 ..... 5 upwards.			2

The subjoined numbers have also to be taken into

Deaths occurring outside the District among persons belonging thereto.....	2	—	—	—	—	2	—	Under 5 ..... 5 upwards.			
Deaths occurring within the District among persons not belonging thereto...	13	1	2	—	1	4	5	Under 5 ..... 5 upwards.			





## (B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES

Officer of Health, during the year 1894, in the EAST PRESTON Rural Sanitary District.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICKNESS COMING TO THE KNOWLEDGE OF THE OFFICER OF HEALTH.					
	Census 1891.	Esti- mated mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.	
(a)	(b)	(c)	(d)	(e)					Typhus.	Enteric or Typhoid
Worthing Sub-district .....	3,261	3,400	111	Under 5 ..... 5 upwards.		1 ..... 2				2 ..... 2
Littlehampton Sub-district ...	3,285	3,300	102	Under 5 ..... 5 upwards.			1 ..... 8	1		4
Arundel Sub-district .....	1,984	2,100	56	Under 5 ..... 5 upwards.		5				1
East Preston Workhouse .....	162	180	—	Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
TOTALS .....	8,692	8,980	269	Under 5 ..... 5 upwards.		1 ..... 7	1 ..... 8	1		2 ..... 7



F INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

[illegible]

MIDHURST  
RURAL SANITARY AUTHORITY.

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pp. 89 et seq.

## RURAL SANITARY DISTRICT OF MIDHURST.

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The population in this registration district was 13,325 at the census of 1841, and 13,599 in 1851; there was then a decline owing to alterations in the area, and from 1861 onwards there has been a steady increase, as is shown in the following statement.

The figures here given relate to the present rural sanitary area which is co-extensive with the registration district.

	1861.	1871.	1881.	1891.
Area in Statute Acres ..	—	65,695	66,571	66,744
Number of Inhabited Houses..	2,473	2,621	2,801	2,919
„ Uninhabited „ ..	88	79	136	188
Population .. ..	12,608	13,042	13,965	14,236
Males .. ..	6,545	6,767	7,185	7,216
Females .. ..	6,063	6,275	6,780	7,020

The males exceed the females in number, but the excess is not so great as in former years. There is a great increase in the number of empty houses, although there is also an increase in the number of occupied dwellings. In most of the parishes, the population is stationary or declining, and year by year the older houses cease to be occupied.

In Easebourne, however, considerable building operations have been going on in recent years, and the increase in the population and in the number of inhabited houses is wholly due to the growth on this area.

The following tables show the population in each parish; and the deaths in each parish from all causes and various causes over a long term of years:—



	HOUSES, 1891.			POPULATION.					
	Inhabited.	Un- inhabited.	Building.	Persons, 1861.	Persons, 1871.	Persons, 1881.	Persons, 1891.	Males, 1891.	Females, 1891.
MIDHURST SUB-DISTRICT :—									
East Lavington ..	36	—	—	190	210	221	191	95	96
West Lavington ..	47	4	3	176	195	151	218	95	123
Tillington ..	195	8	—	908	843	886	871	429	442
Lodsworth ..	151	13	3	629	660	682	645	341	304
Selham ...	8	—	—	123	34	49	48	26	22
Heyshott ..	91	9	—	396	386	448	393	227	166
Graffham ..	84	2	—	416	435	413	407	227	180
Cocking ..	90	9	—	430	493	574	449	251	198
Midhurst ..	334	33	—	1,340	1,465	1,615	1,674	782	892
Woolbeding ..	66	—	—	338	306	362	361	173	188
Easebourne ..	264	14	1	859	881	1,048	1,392	684	708
South Ambersham ..	34	1	—	143	151	124	186	100	86
FERNHURST SUB-DISTRICT :—									
North Ambersham ..	32	2	—	111	168	167	170	78	92

Lurgashall	..	..	146	10	—	727	742	732	762	416	346
Fernhurst	..	..	232	15	—	845	897	1,091	1,133	586	547
Linchmere	..	..	67	4	—	283	303	346	351	176	175
Linch ..	..	..	21	3	—	111	111	99	98	48	50
HARTING SUB-DISTRICT:—											
Stedham ..	..	..	122	8	—	530	502	541	558	261	297
Iping ..	..	..	106	7	—	404	521	523	530	275	255
Trotton ..	..	..	86	3	—	452	399	405	451	223	228
Chithurst..	..	..	60	3	—	215	295	334	297	151	146
Terwick ..	..	..	36	2	—	152	132	185	190	100	90
Rogate ..	..	..	207	11	—	990	999	986	953	481	472
Harting ..	..	..	278	14	2	1,247	1,277	1,274	1,279	676	603
Elsted ..	..	..	40	3	—	174	175	208	191	89	102
Treyford ..	..	..	23	3	—	123	143	147	114	58	56
Didling ..	..	..	14	3	—	85	94	85	61	30	31
Bepton ..	..	..	49	4	—	211	220	269	263	138	125

PARISH.	DEATHS FROM ALL CAUSES IN THE YEARS							Total in Nine-teen Years.	1876-80.				1881-85.				1886-90.					
	1875	1876-80	1881-85	1886-90	1891	1892	1893		1894	Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.	Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.	Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.	
East Lavington ..		13	13	11	1	1	6	1	46	2	—	1	—	1	—	2	2	1	—	1	1	1
West Lavington ..		9	12	8	7	3	3	6	48	—	—	—	—	1	—	2	—	1	—	—	3	3
Tillington ..		82	50	71	29	28	13	8	281	7	1	15	7	5	—	5	5	4	1	10	6	6
Lodsworth ..		48	60	49	18	16	12	7	210	3	—	8	2	2	1	9	3	3	—	8	11	11
Selham ..		7	3	2	—	—	—	—	12	—	—	—	—	—	—	—	2	—	—	—	—	—
Heyshott ..		32	42	27	6	7	8	5	127	2	1	1	5	12	7	2	6	2	—	—	5	5
Grafham ..		32	30	34	9	2	3	7	117	3	—	7	4	3	—	5	2	2	—	2	—	—
Cocking ..		43	33	33	6	6	5	6	132	2	—	9	7	3	—	1	5	3	—	2	7	7
Midhurst ..		134	149	130	39	31	22	30	535	10	—	15	15	4	—	19	24	6	—	20	17	17
Woolbeding ..		33	28	12	6	7	6	2	94	3	—	1	5	3	2	1	4	1	—	2	2	2
Easebourne ..		73	76	91	24	31	10	20	325	1	—	9	7	5	—	7	9	12	3	5	14	14
South Ambersham		10	9	8	2	2	4	2	37	1	—	2	2	—	—	—	—	—	—	—	3	3
North Ambersham		7	13	9	—	3	1	—	33	1	—	—	—	1	1	3	2	2	—	3	1	1



Lurgashall	..	57	54	42	13	9	9	10	194	9	7	5	9	4	1	9	6	4	2	5	11
Fernhurst	..	79	96	76	20	15	15	21	322	4	3	11	11	15	5	8	13	10	2	6	10
Linchmere	..	25	21	26	6	10	—	5	93	2	1	1	4	5	4	—	4	4	2	1	2
Linch ..	..	3	6	9	4	2	1	2	27	—	—	—	—	—	—	2	—	—	—	2	2
Stedham ..	..	49	39	42	10	7	7	11	165	2	—	5	3	6	—	—	3	1	1	4	7
Iping ..	..	25	44	48	14	8	3	4	146	2	—	2	5	4	—	2	8	2	—	1	10
Trotton ..	..	34	33	32	3	8	4	6	120	5	—	4	6	8	4	3	5	2	—	3	2
Chithurst..	..	17	23	23	5	4	6	2	80	1	—	2	2	—	—	4	6	4	—	4	3
Terwick ..	..	12	13	12	2	5	1	2	47	—	—	1	3	—	—	1	5	2	—	2	3
Rogate ..	..	71	76	72	17	12	1	5	267	7	—	5	1	4	—	6	10	3	1	6	12
Harting ..	..	102	108	88	20	21	21	26	386	7	1	8	13	16	2	5	17	—	—	3	13
Elsted ..	..	24	21	11	—	2	2	2	62	4	—	3	2	1	—	3	3	2	—	1	2
Treyford ..	..	14	12	12	2	1	2	2	45	—	—	2	1	1	—	—	1	—	—	2	3
Didling ..	..	11	10	6	—	1	2	1	31	1	—	1	—	2	—	2	1	1	—	1	—
Bepton ..	..	17	22	17	4	5	3	4	72	—	—	1	3	4	—	1	4	—	—	1	3
Total	..	1063	1096	1001	267	247	183	197	4,054	79	14	119	117	110	27	102	150	72	12	95	153

## BIRTHS AND BIRTH-RATE.

During the year 1894 the births of 371 children were registered; of these 184 were male, and 187 were female.

Estimating the population in the middle of the year at 14,310, the birth-rate was equal to 25·9 per 1,000 persons living.

The births and birth-rate during the past ten years have been as follows :—

Year.	Births.	Birth-rate.	Year.	Births.	Birth-rate.
1885 ..	406	28·6	1890 ..	348	24·4
1886 ..	419	29·5	1891 ..	353	24·7
1887 ..	345	24·3	1892 ..	356	24·9
1888 ..	399	28·0	1893 ..	393	27·5
1889 ..	366	25·7	1894 ..	371	25·9

The mean number of births is 376, and the mean birth-rate is 26·4 per 1,000 of population.

In England and Wales the birth-rate during the year was 29·6 per 1,000 persons living, a rate 2·0 per 1,000 below the mean rate in the ten years, 1884-93.

The following table shows the births and birth-rate in each locality during the past four years :—

	Births.					Birth-rate.			
	1891.	1892.	1893.	1894.		1891.	1892.	1893.	1894.
Midhurst Parish ..	41	41	47	40	..	24·5	24·4	28·0	23·7
Easebourne Parish ..	47	38	32	37	..	33·8	26·6	22·0	25·2
Rest of Midhurst Sub-district ..	85	99	112	98	..	22·5	26·4	29·9	26·1
Fernhurst Sub-district	65	65	73	68	..	25·8	25·8	29·0	27·0
Harting Sub-district	115	113	129	128	..	23·5	23·1	26·4	26·2
Total ..	353	356	393	371	..	24·7	24·9	27·5	25·9

## GENERAL MORTALITY.

There were 197 deaths registered in this district during the year 1894, and of these, fourteen took place in Easebourne Workhouse. These fourteen deaths have been distributed amongst the several parishes whence each inmate came, viz., Tillington 1, Midhurst 2, Easebourne 3, Fernhurst 2, Stedham 1, Iping 1, Harting 2, Bepton 2; in all 14.

Estimating the population in the middle of the year at 14,310, the death-rate was 13·7 per 1,000 persons living.

In country districts throughout England and Wales the rate of mortality in 1894 was 15·6 per 1,000 of population.

The variations in the death-rate during the past ten years have been as follows :—

Year.	Deaths.	Death-rate	Year.	Deaths.	Death rate.
1885 ..	233 ..	16·4	1890 ..	191 ..	13·4
1886 ..	243 ..	17·1	1891 ..	267 ..	18·7
1887 ..	219 ..	15·4	1892 ..	247 ..	17·3
1888 ..	191 ..	13·4	1893 ..	183 ..	12·8
1889 ..	157 ..	11·0	1894 ..	197 ..	13·7

The mean number of deaths is 213, and the mean death-rate is 14·9 per 1,000 of population.

There have been during this decade 3,756 births, so that the natural increase of population by excess of births over deaths was 1,628. The actual increase as shewn by the Census returns was 271, so that a large number of persons must have left the district.

The following table shows the deaths and death-rate in each locality during the past four years :—

	Deaths.					Death-rate.			
	1891.	1892.	1893.	1894.		1891.	1892.	1893.	1894.
Midhurst Parish ..	39	31	22	30	..	23·3	18·4	13·1	17·7
Easebourne Parish ..	24	31	10	20	..	17·2	21·7	6·9	13·6
Rest of Midhurst Sub-district .. ..	84	72	60	44	..	22·3	19·2	16·0	11·7
Fernhurst Sub-district	43	39	26	38	..	17·1	15·5	10·3	15·1
Harting Sub-district	77	74	65	65	..	15·7	15·1	13·3	13·3
Total ..	267	247	183	197		18·7	17·3	12·8	13·7

In each parish the deaths were thus distributed :—

East Lavington ..	1	..	Fernhurst ..	..	21
West Lavington ..	6	..	Linchmere ..	..	5
Tillington ..	8	..	Linch ..	..	2
Lodsworth ..	7	..	Stedham ..	..	11
Selham ..	none	..	Iping ..	..	4
Heyshott ..	5	..	Trotton ..	..	6
Graffham ..	7	..	Chithurst ..	..	2
Cocking ..	6	..	Terwick ..	..	2
Midhurst ..	30	..	Rogate ..	..	5
Woolbeding ..	2	..	Harting ..	..	26
Easebourne ..	20	..	Elsted ..	..	2
South Ambersham ..	3	..	Treyford ..	..	2
North Ambersham ..	none	..	Didling ..	..	1
Lurgashall ..	10	..	Bpton ..	..	4
Total ..	197.				

#### INFANT MORTALITY.

The *infant mortality* is here given as measured by the number of deaths under one year of age to the total number of births in the year :—



			Births.	Deaths under one year.	Ratio to 1,000 Births.
Midhurst Parish	..	..	40	5	125
Easebourne Parish	..	..	37	2	54
Rest of Midhurst Sub-district	..	..	98	13	132
Fernhurst Sub-district	..	..	68	7	103
Harting Sub-district	..	..	128	9	70
Total			371	36	97

In England and Wales the proportion of deaths under one year of age to registered births was 137 per 1,000 during the past year, the mean proportion in the preceding ten years having been 147.

The mean annual death-rate in the previous six years 1888-93, was 87 per 1,000 registered births.

### ZYMOTIC MORTALITY.

The deaths from zymotic disease were 14 in the case of those which are notifiable, and 7 in the other class where the number of cases cannot be obtained.

Adding the two classes together, there is a total of 21 deaths with a zymotic mortality of 1.4 per 1,000.

				Cases.	Deaths.
Fever.	Small-pox	..	..	none	none
	Scarlatina	..	..	9	1
	Diphtheria	..	..	15	6
	Membranous Croup	..	..	none	1
	Typhus	..	..	none	none
	Enteric	..	..	8	6
	Continued	..	..	none	none
	Relapsing	..	..	none	none
	Puerperal	..	..	1	none
	Cholera	..	..	none	none
	Erysipelas	..	..	6	none
Total				39	14

In the other class the deaths were as follows :—

				Deaths.
Measles	..	..	..	5
Whooping Cough	..	..	..	2
Diarrhœa and Dysentery	..	..	..	none
Rheumatic Fever	..	..	..	none
Total				7

The prevalence in each quarter of each infectious disease is here shown in the following table —

	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.
Scarlatina .. ..	6	—	2	1	9
Diphtheria .. ..	1	2	10	2	15
Enteric Fever .. ..	7	1	—	—	8
Puerperal Fever .. ..	—	—	—	1	1
Erysipelas .. ..	3	1	1	1	6
Total..	17	4	13	5	39

The Infectious Disease (Notification) Act, 1889, came into operation in this district on January 1st, 1890. There were 55 cases notified in 1890, 83 in 1891, 100 in 1892, 85 in 1893, and 39 in 1894, giving in five years a total of 362 cases in a population of 14,300.

### WATER SUPPLY.

In May, 1894, the Sanitary Authority consulted Professor Boyd Dawkins, F.G.S., F.R.S., as to the best site and means for obtaining a water supply for the town of Midhurst. A survey of the district was made on the 19th May. The Sanitary Authority was advised to make a trial boring to the north of the town, at a point near Knighton's Well, in the sub-division of the Lower Green Sands, known as the Hythe Beds. Steps were at once taken to obtain permission to make a trial bore at the above site, but the necessary permission could not be obtained. A site was then selected about 200 yards S.W. of the Knighton Well, but the Sanitary Authority again failed to obtain the necessary permission to bore. In September a site was procured about half-a-mile east of Knighton's Well, in "Knight's" Fields, Easebourne, and tenders were invited and a contract entered into with Messrs. Le Grand and Sutcliffe, of London, to sink a nine-inch bore-hole, with the result that a large body of water was reached at a depth of 146 feet, which rose to the height of 14'0" above the surface of the ground, the yield of the bore-hole was at first over 200,000 gallons per day, but as a large quantity of fine running sand was forced up with the water, the lining tube was driven down to a seam of hard rock, 150 feet below the surface, and the bore-hole sunk to a depth of 176 feet, the fine sand was shut, and the yield dropped to about 120,000 gallons per day. The water has since continued to flow over the surface and the yield is the same.

The boring was made in the Hythe Beds, and a section shows the nature of the soils passed through:—

	Feet.
Clayey sand .. ..	17
Hard sandstone .. ..	6
Sand and sandstone .. ..	12
Grey plastic clay .. ..	3
Sand and sandstone .. ..	12
Sandy clay and grey sandstone .. ..	13
Clayey sand and blue sandstone .. ..	83
Fine sand .. ..	4
Hard sandstone .. ..	2
Sandy clay and sandstone .. ..	18
Dark blue clay .. ..	6
Total ..	176

This water was analysed by Mr. Otto Hehner with the following result :—

The sample was somewhat turbid owing to the presence of suspended mineral matter. The following results express the composition of the water calculated for 100,000 parts :—

Chlorine	..	..	..	..	2.00
Sulphuric acid	..	.	..	..	4.52
Nitric acid	..	..	..	..	none
Silici	..	..	..	..	1.80
Oxide of Iron	..	..	..	..	0.20
Lime	..	..	..	..	8.37
Magnesia	.	..	..	..	1.08
Sodium	..	..	..	..	1.28
Soda	..	..	..	..	0.74
Combined carbonic acid	..	..	..	..	5.81
					<hr/>
Total dissolved mineral matter	..	..	..	..	25.80
Free Ammonia	..	..	..	..	0.0351
Albuminoid Ammonia	..	..	..	..	0.0092

The mineral substances enumerated in the above table are contained in the water in the form of the following saline combinations :—

Sodium chloride	..	..	..	..	3.28
Sodium sulphate	..	..	..	..	1.70
Calcium sulphate	..	..	..	..	6.05
Calcium carbonate	..	..	..	..	10.50
Magnesium carbonate	..	..	..	..	2.27
Silica	..	..	..	..	1.80
Oxide of iron	..	..	..	..	0.20
					<hr/>
Total	..	..	..	..	25.80
Total hardness, per 100,000 parts	..	..	..	..	14.9
Hardness after boiling	..	..	..	..	4.5
Hardness removed by boiling	..	..	..	..	10.4

The analysis shows that the water contains a very moderate amount of dissolved mineral matters. These consist mainly of carbonate of lime, sulphate of calcium, and a little sodium chloride. The hardness is small, and it is almost completely removed by boiling.

The organic matter is equally moderate in proportion; like most waters which rise from a great depth in an iron tube, the sample contains a notable trace of ammonia, but this is evidently entirely



of mineral origin. As far as chemical analysis is capable of deciding, there is no indication whatever of pollution with sewage or other animal matter.

I am of opinion that the water is altogether of excellent quality.

It is in every way well suited for domestic use, including washing and cooking, and as a drinking supply, it leaves nothing to be desired.

The turbidity noticed in the sample will doubtless vanish after a short time, when the bore-hole has become thoroughly cleared and the disturbance of the soil caused by the boring has worn off; but the turbidity, as now noticed, is entirely harmless.

### SEWAGE AND DRAINAGE.

A scheme of drainage was submitted to the Local Government Board, which included part of the parishes of Easebourne and West Lavington. The scheme proposed to deal only with the sewage of the town, and to exclude, as far as possible, all surface and storm waters. The sewage was to be conveyed by pipe sewers to a catchment tank on the wharf, and thence to be pumped on to 22 acres of land about a mile from the town of Midhurst. The cost of the scheme was estimated to be £3,500, to be repaid by 50 annual instalments. A Public Inquiry was held on the 27th September, by F. H. Tulloch, Esq., C.E., when strong opposition was offered by the ratepayers of Easebourne and West Lavington at being included in the proposed Special Drainage District, and also from the ratepayers of Midhurst at the cost of the proposal. Mr. Wilberforce formally objected to the scheme on the ground that as the District Council would come into power in the course of a few months, such a large outlay should not be undertaken by the Sanitary Authority. It also transpired at the Inquiry that as the land on which it was proposed to treat the sewage would only be leased for 21 years, the loan would only be sanctioned for the same term of years. The Inquiry was adjourned for a month. In the meantime the Sanitary Authority decided to withdraw the Scheme in order that arrangements might be made to secure a longer lease of the land.

### SYSTEMATIC INSPECTION.

The following is a summary of the routine work done during the year 1894 :—

No. of Houses visited	..	..	..	..	385
No. of Nuisances	..	..	..	..	192
No. of Nuisances abated without notice	..	..	..	..	170
No. of Nuisances abated with notice	..	..	..	..	17
No. of Houses unfit for habitation	..	..	..	..	1
No. of Houses closed	..	..	..	..	1

No. of Houses disinfected .. .. .	40
No. of Houses whitewashed .. .. .	48
Water certificates granted .. .. .	13
Wells dug .. .. .	9
Cases of overcrowding .. .. .	5
Cases of overcrowding abated .. .. .	5
No. of Houses where drainage relaid .. .. .	24
Samples of water analysed .. .. .	15
Samples of water polluted .. .. .	7

### LEGAL PROCEEDINGS.

An owner was summoned for letting two newly-built houses without having previously obtained a water certificate, Public Health (Water) Act, 1878. Fined 10s. and costs, and a supply of water was afterwards provided and a certificate granted.

The bakehouses are limewashed twice a year. They are very well kept, and in no case is there any drain within the building.

The ten slaughter houses are very fairly kept, and any refuse or offal is removed as soon as possible; the walls are regularly limewashed.

Five cases of overcrowding were abated during the year.

No Article of Food was condemned during the year.

INQUESTS were held in eleven cases:—Male, 32 years, softening of the brain, induced by being thrown accidentally out of his cart; female, 4 years, suppressed measles; male, 34 years, accidentally crushed between two railway trucks; male, 5 years, manslaughter; male, 35 years, accidental fall from a van; male, 2 years, accidentally drowned; female, 63 years, found drowned; male, 16 months, bronchitis; female, 40 years, accidentally burnt; female, 76 years, suicide by drowning; male, 12 years, injury to shoulder-blade and blood poisoning.

There were nine cases returned as “not certified” during the year:—Male, 5 months, convulsions; female, 92 years, senile decay; male, 62 years, cerebral hæmorrhage; male, 11 months, measles; female, 58 years, heart disease; male, 72 years, accidental fall downstairs; male, 78 years, probably cardiac syncope; female, 12 months, convulsions; male, 60 years, probably heart disease.

## MIDHURST RURAL SANITARY DISTRICT.

TABLE 1.—Showing the Deaths at various groups of ages in the fourteen years, 1881-94.

Year.	At all ages.	Under 1 Year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
1881-85... ..	1,096	184	111	64	65	306	366
1886-90... ..	1,001	150	88	43	45	285	390
1891 ... ..	267	45	26	16	10	69	101
1892 ... ..	247	38	24	13	17	78	77
1893 ... ..	183	28	16	10	12	46	71
1894 ... ..	197	36	15	10	16	46	74
Total...	2,991	481	280	156	165	830	1,079



## MIDHURST RURAL SANITARY DISTRICT.

TABLE 2.—Showing the Deaths in the nineteen years, 1876-94, from various causes.

Year.		Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza.	Total.
						Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.								
1876-80	...	4	3	14	—	1	10	2	—	1	—	3	7	17	12	5	—	79
1881-85	...	6	22	27	—	—	10	—	—	1	—	10	7	13	10	4	—	110
1886-90	...	—	2	12	—	—	12	—	—	2	—	1	11	23	5	4	5	77
1891	...	—	—	4	1	—	—	—	—	—	—	—	1	7	—	2	12	27
1892	...	—	—	12	—	—	—	—	—	—	—	1	—	7	1	1	25	47
1893	...	—	—	5	—	—	1	—	—	—	—	3	5	2	—	—	9	25
1894	...	—	1	6	1	—	6	—	—	—	—	—	5	2	—	—	5	26
Total...		10	28	80	2	1	39	2	—	4	—	18	36	71	28	16	56	391

## MIDHURST RURAL SANITARY DISTRICT.

TABLE 3.—Showing the Deaths and Death-rate from all causes and from various causes in the nineteen years, 1876-94.

PERIOD,	Deaths during the years 1876-94 from					Mean Annual Death-rate per 100,000 living from					
	Population in middle of period.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.
1876-80	..	1,063	79	119	117	126	1,552	115	174	170	182
1881-85	..	1,096	110	102	150	105	1,540	154	143	211	147
1886-90	..	1,001	72	95	153	111	1,356	98	128	207	150
1891	..	267	15	14	52	22	1,875	105	98	365	154
1892	..	247	22	22	31	27	1,732	154	154	217	189
1893	..	183	16	14	24	15	1,282	112	98	168	105
1894	..	197	21	14	20	20	1,376	146	98	139	139

(A)—Table of DEATHS during the Year 1894, in the Midhurst Rural

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.  (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)	1	2	3
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and up-wards. (h)		Small Pox. .....	Scarlatina. .....	Diphtheria. .....
Midhurst Parish .....	28	5	—	1	—	9	13	Under 5 ..... 5 upwards.	.....	.....	.....
Easebourne Parish .....	17	2	1	—	2	8	4	Under 5 ..... 5 upwards.	.....	1	.....
Rest of Midhurst Sub-district	43	13	6	1	4	7	12	Under 5 ..... 5 upwards.	.....	.....	.....
Fernhurst Sub-district .....	36	7	—	2	6	7	14	Under 5 ..... 5 upwards.	.....	.....	.....
Harting Sub-district .....	59	9	8	5	3	13	21	Under 5 ..... 5 upwards.	.....	.....	1 5
Easebourne Workhouse.....	14	—	—	1	1	2	10	Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
								Under 5 ..... 5 upwards.	.....	.....	.....
TOTALS.....	197	36	15	10	16	46	74	Under 5 ..... 5 upwards.	.....	1	5
The subjoined numbers have also to be taken into											
Deaths occurring outside the District among persons belonging thereto.....								Under 5 ..... 5 upwards.			
Deaths occurring within the District among persons not belonging thereto...								Under 5 ..... 5 upwards.			



District, classified according to Diseases, Ages, and Localities.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN  
UNDER FIVE YEARS OF AGE.

[illegible]

account in judging of the above records of mortality.

[illegible]

## (B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES

Officer of Health, during the year 1894, in the MIDHURST Rural Sanitary District.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICK- COMING TO THE KNOWLEDGE OF					
	Census 1891.	Esti- mated to mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.	
(a)	(b)	(c)	(d)	(e)					Typhus.	Enteric or Typhoid.
Midhurst Parish .....	1,674	1,690	40	Under 5 ..... 5 upwards.						
Easebourne Parish .....	1,296	1,380	35	Under 5 ..... 5 upwards.						
Rest of Midhurst Sub-district	3,769	3,750	98	Under 5 ..... 5 upwards.						
Fernhurst Sub-district .....	2,514	2,520	68	Under 5 ..... 5 upwards.						
Harting Sub-district .....	4,887	4,880	128	Under 5 ..... 5 upwards.						
Easebourne Workhouse .. .....	95	90	2	Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
TOTALS .....	14,236	14,310	371	Under 5 ..... 5 upwards.						

OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

[illegible]



WESTBOURNE  
RURAL SANITARY AUTHORITY.

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pp. 109 et seq.

## RURAL SANITARY DISTRICT OF WESTBOURNE.

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The population in this registration district was 6,669 at the census of 1841, and 6,944 in 1851; it then rose steadily up to 1881, since which period it has declined; this decrease is not to be accounted for by any change in area.

The following figures relate to the present rural sanitary area which is co-extensive with the registration district.

	1861.	1871.	1881.	1891.
Area in Statute Acres ..	—	32,886	32,040	32,040
Number of Inhabited Houses..	1,427	1,495	1,533	1,516
„ Uninhabited „ ..	43	56	66	112
Population .. ..	6,957	7,221	7,420	7,084
Males .. ..	3,502	3,611	3,742	3,678
Females .. ..	3,455	3,610	3,552	3,532

The number of males, as is usual in rural districts, exceeds the females, and there was a decline in the population in the decade 1881-91; up to that time there had been a steady increase in the previous thirty years.

The number of uninhabited houses shows a marked decrease, while at the same time there is an increase since 1861 in the number of those which are occupied.

The people are chiefly engaged in agriculture, but many are engaged in fishing at Bosham and Hermitage; most of the cottages are in good order, and surrounded by a good garden.

The following tables show some interesting facts about the population of each parish and the deaths from all causes and from various causes for a long term of years:—

	HOUSES, 1891.			POPULATION.					
	Inhabited.	Un- inhabited.	Building.	Persons, 1861.	Persons, 1871.	Persons, 1881.	Persons, 1891.	Males, 1891.	Females, 1891.
WESTBOURNE DISTRICT:—									
West Dean .. ..	120	1	—	681	683	732	611	315	296
East Marden .. ..	17	2	—	63	81	91	74	36	38
North Marden .. ..	6	—	—	28	27	39	39	25	14
Up Marden .. ..	65	10	—	366	365	336	310	169	141
Stoughton .. ..	120	4	—	633	603	626	604	319	285
Compton .. ..	61	7	—	266	286	289	268	136	132
Racton .. ..	22	—	—	95	97	97	100	48	52
Funtington .. ..	237	22	2	1,099	1,065	1,108	1,020	495	525
Bosham .. ..	274	11	2	1,158	1,184	1,255	1,258	619	639
Chidham .. ..	53	7	—	310	314	266	241	124	117
West Thorney .. ..	34	2	—	93	181	131	150	83	67
Westbourne .. ..	507	46	3	2,165	2,335	2,450	2,409	1,183	1,226



PARISH.	DEATHS FROM ALL CAUSES IN THE YEARS						1881-85.				1886-90.			
							Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.	Zymotic Disease.	Diphtheria.	Phthisis.	Lung Disease.
	1881-85	1886-90	1891	1892	1893	1894								
West Dean ..	44	48	11	9	9	7	6	—	3	4	7	—	3	7
East Marden ..	8	4	2	1	—	2	—	—	—	1	—	—	—	—
North Marden ..	3	4	2	—	1	1	—	—	—	—	—	—	—	1
Up Marden ..	16	22	4	1	3	7	2	1	2	4	1	—	2	6
Stoughton ..	50	36	9	11	10	7	3	2	5	10	1	—	4	7
Compton ..	22	23	4	4	5	6	1	1	2	9	1	—	1	6
Racton ..	7	3	—	1	4	—	2	—	—	1	—	—	1	—
Funtington ..	84	81	12	12	21	13	12	10	5	20	9	—	9	15
Bosham ..	114	88	22	23	21	21	12	1	4	15	1	—	11	26
Chidham ..	20	14	6	3	4	4	3	—	4	1	1	—	2	3
West Thorney ..	1	5	1	2	4	2	—	—	—	—	1	—	—	1
Westbourne ..	182	194	51	49	44	36	11	3	21	33	17	4	19	34
Total ..	551	522	124	116	126	106	52	18	46	98	39	4	52	106

## BIRTHS AND BIRTH-RATE.

During the year 1894 the births of 199 children were registered; of these 106 were male, and 93 were female.

Estimating the population in the middle of the year at 7,030, the birth-rate was equal to 28·3 per 1,000 persons living.

The births and birth-rate during the past ten years have been as follows :—

Year.	Births.	Birth-rate.	Year.	Births.	Birth-rate.
1885 ..	212 ..	29·0	1890 ..	207 ..	29·1
1886 ..	208 ..	28·6	1891 ..	194 ..	27·4
1887 ..	225 ..	31·1	1892 ..	203 ..	28·8
1888 ..	204 ..	28·4	1893 ..	183 ..	26·0
1889 ..	203 ..	28·4	1894 ..	199 ..	28·3

The mean number of births is 204, and the mean birth-rate is 28·5 per 1,000 of population.

In England and Wales the birth-rate during the year was 29·6 per 1,000 persons living, a rate 2·0 per 1,000 below the mean rate in the ten years, 1884-93.

The following table shows the births and birth-rate in each locality during the past four years :—

		Births.					Birth-rate.			
		1891.]	1892.	1893.	1894.		1891.	1892.	1893.	1894.
Funtington Parish ..	..	27	24	23	22	..	26·4	28·8	23·0	22·0
Bosham Parish ..	..	52	51	29	43	..	41·3	40·5	23·0	33·8
Westbourne Parish ..	..	59	62	70	66	..	24·4	25·7	29·2	27·5
Rest of Westbourne District	..	56	66	61	68	..	23·3	27·8	25·7	28·8
Total ..	..	194	203	183	199	..	27·4	28·8	26·0	28·3

## GENERAL MORTALITY.

There were 106 deaths registered in this district during the year 1894, and of these, thirteen took place in Westbourne Workhouse. These deaths have been distributed amongst the several parishes whence each inmate came, viz., Up Marden 1, Stoughton 2, Compton 1, Funtington 2, Bosham 3, Westbourne 4, in all 13.

Estimating the population in the middle of the year at 7,030, the death-rate was equal to 15·1 per 1,000 persons living.

In country districts throughout England and Wales the rate of mortality in 1894 was 15·6 per 1,000 of population.

The variations in the death-rate during the past ten years have been as follows :—

Year.	Deaths.	Death-rate.	Year	Deaths.	Death rate.
1885 ..	125 ..	17·1	1890 ..	97 ..	13·6
1886 ..	132 ..	18·2	1891 ..	124 ..	17·5
1887 ..	108 ..	14·9	1892 ..	116 ..	16·4
1888 ..	96 ..	13·4	1893 ..	126 ..	17·9
1889 ..	89 ..	12·4	1894 ..	106 ..	15·1

The mean number of deaths is 112, and the mean death-rate is 15·6 per 1,000 of population.

There have been during the decade 2,038 births, so that the natural increase of population by excess of births over deaths was 919. The census returns, however, show a *decrease* of 336, so that large numbers must have left the district in the past decade.

The following table shows the deaths and death-rate in each locality during the past four years :—

	Deaths.					Death-rate.			
	1891.	1892.	1893.	1894.		1891.	1892.	1893.	1894.
Funtington Parish..	12	12	21	13	..	11·7	14·4	21·0	13·0
Bosham Parish.. ..	22	23	21	21	..	17·5	18·2	16·7	16·5
Westbourne Parish..	51	49	44	36	..	21·1	20·4	18·3	15·0
Rest of Westbourne District .. ..	39	32	40	36	..	16·9	13·6	16·9	15·2
Total ..	124	116	126	106	..	17·5	16·4	17·9	15·1

In each parish the deaths were thus distributed :—

West Dean ..	7	..	Racton ..	..	none
East Marden..	2	..	Funtington ..	..	13
North Marden ..	1	..	Bosham ..	..	21
Up Marden ..	7	..	Chidham ..	..	4
Stoughton ..	7	..	West Thorney ..	..	2
Compton ..	6	..	Westbourne ..	..	36
Total ..	106.	..			

### INFANT MORTALITY.

The *infant mortality* is here given as measured by the number of deaths under one year of age to the total number of births in the year :—

	Births.	Deaths under one year.	Ratio to 1,000 Births.
Funtington Parish ..	22	1	45
Bosham Parish ..	43	2	46
Westbourne Parish ..	66	7	106
Rest of Westbourne District ..	68	5	74
Total ..	199	15	75



The mean annual death-rate in the previous six years 1888-93 was 90 per 1,000 registered births.

In England and Wales the proportion of deaths under one year of age to registered births was 137 per 1,000 during the past year, the mean proportion in the preceding ten years having been 147.

### ZYMOTIC MORTALITY.

The deaths from zymotic diseases were 9 in the case of those which are notifiable, and 1 in the other class where the number of cases cannot be obtained.

Adding the two classes together, there is a total of 10 deaths with a zymotic mortality of 1·4 per 1,000.

					Cases.	Deaths.
Fever.	Small-pox	..	..	..	none	none
	Scarlatina	..	..	..	5	none
	Diphtheria	..	..	..	36	7
	Membranous Croup	..	..	..	2	2
	Typhus	..	..	..	none	none
	Enteric	..	..	..	6	none
	Continued	..	..	..	none	none
	Relapsing	..	..	..	none	none
	Puerperal	..	..	..	2	none
	Cholera	..	..	..	none	none
	Erysipelas	..	..	..	9	none
Total					60	9

In the other class the deaths were thus recorded :—

					Deaths.
Measles	..	..	..	..	none
Whooping Cough	..	..	..	..	none
Diarrhœa and Dysentery	..	..	..	..	none
Rheumatic Fever	..	..	..	..	1
Total					1

The prevalence in each quarter of each infectious disease is shown in the following table :—

	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.
Scarlatina	5	—	—	—	5
Diphtheria	6	9	12	9	36
Membraneous Croup	1	1	—	—	2
Enteric Fever	1	2	—	3	6
Puerperal Fever	—	—	2	—	2
Erysipelas	1	1	1	6	9
Total..	14	13	15	18	60

Two cases of diarrhoea were also notified in the third quarter of the year.

The Infectious Disease (Notification) Act, 1889, came into operation in this district on December 31st, 1891. There were 30 cases notified in 1892, 85 in 1893, and 60 in 1894, giving in three years a total of 175 cases in a population of 7,030.

### SYSTEMATIC INSPECTION.

The following is a summary of the work done by Mr. A. Rawlins, the Sanitary Inspector, during the past year. A number of minor nuisances are not reported, as they were abated at once on a verbal order or caution being given.

No. of Houses visited	..	..	..	..	312
No. of Nuisances reported	..	..	..	..	62
No. of Nuisances abated	..	..	..	..	56
No. of Notices served	..	..	..	..	49
No. of Houses reported unfit for habitation (2 are closed, 5 have been repaired, &c.)	..	..	..	..	7
Houses cleansed and disinfected	..	..	..	..	25
Houses cleansed and whitewashed	..	..	..	..	14
Houses fumigated by Inspector	..	..	..	..	21
Cases of overcrowding reported	..	..	..	..	2
Cases of overcrowding abated	..	..	..	..	2
New closets erected	..	..	..	..	19
Old closets removed and re-constructed	..	..	..	..	2
Wells sunk	..	..	..	..	1
Wells cleaned	..	..	..	..	9
Samples of unwholesome food taken	..	..	..	..	none
Samples of water sent for analysis	..	..	..	..	12
Samples of water (not sent) unfit for drinking	..	..	..	..	2
Underground tanks provided	..	..	..	..	4
Underground tanks cleansed	..	..	..	..	3

There is one common lodging house at Hermitage in which a few lodgers are taken; this is very well kept.

There are now twenty registered cowsheds and dairies but many of them are on a very small scale; they are well kept.

Margarine is not in much demand, but in such cases the regulations of the Act are complied with; the sale seems to decrease.

The bakehouses are sixteen in number; they are often inspected, and they are kept in a clean condition; one new one has been erected, and one old one has been closed; one which had been disused is now used again.

There are five slaughter houses which are very well attended to, three of these are small and used occasionally.

Two cases of overcrowding were abated.

There was no case in which it was necessary to condemn meat or any other article of food.

### SUNSHINE.

The following figures have been kindly sent to me by the Rev. L. B. Birkett, M.A., from the observations taken by him at Westbourne Rectory.

	1893.			1894.	
	Hours of bright sunshine.	Sunless days.		Hours of bright sunshine.	Sunless days.
January . . . .	39·3	15	..	86·3	9
February . . .	82·3	6	..	96·4	10
March . . . . .	232·1	2	..	219·1	2
April . . . . .	305·7	0	..	188·2	1
May . . . . .	257·5	0	..	223·3	1
June . . . . .	256·0	2	..	177·3	3
July . . . . .	212·1	2	..	192·3	3
August . . . .	248·9	1	..	162·5	1
September . .	169·7	3	..	140·2	6
October . . . .	136·3	7	..	96·4	5
November . . .	65·5	8	..	91·1	10
December . . .	64·6	8	..	67·8	14
Total . . .	2,070·0	54		1,740·9	65

In 1890, there were 1,773·8 hours of bright sunshine, and 68 sunless days; in 1891, the numbers were 1,682·8 and 61; and in 1892, the numbers were 1859·8 and 65 respectively.

### RAINFALL.

	1893.			1894.	
	Amount in inches.	No. of rainy days.		Amount in inches.	No. of rainy days.
January . . . .	1·68	16	..	5·37	22
February . . . .	3·18	24	..	2·01	15
March . . . . .	·60	7	..	1·65	14
April . . . . .	·07	2	..	2·26	14
May . . . . .	·95	7	..	1·01	11
June . . . . .	1·29	7	..	1·75	13
July . . . . .	4·55	13	..	5·38	20
August . . . . .	1·10	9	..	2·14	17
September . . .	2·04	16	..	3·19	12
October . . . . .	7·08	22	..	6·10	16
November . . . .	2·31	17	..	5·96	20
December . . . .	2·90	18	..	2·22	18
Total . . .	27·75	158		39·04	192



The rainfall in 1890 amounted to 24·13 in., in 1891 to 35·94 in., and in 1892 to 26·05 in.

An INQUEST was held in one case :—Male, four days, accidentally suffocated in bed.

There were six cases returned as “not certified” during the year :—Male, 66 years, dropsy ; male, 2 days, debility from birth ; female, 16 months, probably measles ; female, 14 years, syncope ; female, 14 years, epilepsy ; female, 94 years, old age.

## WESTBOURNE RURAL SANITARY DISTRICT.

TABLE 1.—Showing the Deaths at various groups of ages in the fourteen years, 1881-94.

Year.	At all ages.	Under 1 Year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
1881-85... ..	551	91	42	33	23	152	210
1886-90... ..	522	90	45	16	25	140	206
1891 ... ..	124	17	10	9	7	30	51
1892 ... ..	116	22	9	10	3	27	45
1893 ... ..	126	26	14	11	6	30	39
1894 ... ..	106	15	10	6	3	27	45
Total...	1,545	261	130	85	67	406	596

TABLE 2.—Showing the Deaths in the fourteen years, 1881-94, from various causes.

Year.	Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza.	Total.
					Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.								
1881-85 ... ..	—	1	18	—	—	12	—	—	1	—	4	1	9	6	—	—	52
1886-90 ... ..	—	—	4	—	—	7	—	—	—	—	1	6	17	3	1	3	42
1891 ... ..	—	—	6	—	—	1	—	—	—	—	1	—	3	1	—	6	18
1892 ... ..	—	—	5	—	—	—	—	—	—	—	—	—	4	2	—	12	23
1893 ... ..	—	—	5	—	—	2	—	—	—	—	1	8	1	2	3	7	29
1894 ... ..	—	—	7	2	—	—	—	—	—	—	—	—	—	—	1	5	15
Total...	—	1	45	2	—	22	—	—	1	—	7	15	34	14	5	33	179

## WESTBOURNE RURAL SANITARY DISTRICT.

TABLE 3.—Showing the Deaths and Death-rate from all causes and from various causes in the fourteen years, 1881-94.

PERIOD.	Deaths during the years 1881-94 from						Mean Annual Death-rate per 100,000 living from					
	Population in middle of period.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.	
1881-85	7,360	551	52	46	98	44	1,473	138	123	261	117	
1886-90	7,180	522	39	52	106	37	1,376	103	136	279	97	
1891	7,084	124	12	7	35	4	1,750	169	99	494	56	
1892	7,050	116	11	8	26	6	1,645	156	113	369	85	
1893	7,030	126	22	9	17	7	1,792	313	128	242	100	
1894	7,030	106	10	11	20	8	1,508	142	156	284	114	



(A)—Table of DEATHS during the Year 1894, in the Westbourne Rural

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.  (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)	1	2	3
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and up-wards. (h)		Small Pox. .....	Scarlatina. .....	Diphtheria. .....
Funtington Parish .....	11	1	1	—	—	3	6	Under 5 ..... 5 upwards.			1
Bosham Parish.....	18	2	3	1	2	5	5	Under 5 ..... 5 upwards.			
Westbourne Parish.....	32	5	3	1	1	8	14	Under 5 ..... 5 upwards.			2 1
Rest of District .....	32	5	3	4	—	8	12	Under 5 ..... 5 upwards.			3
Westbourne Workhouse.....	13	2	—	—	—	3	8	Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
TOTALS.....	106	15	10	6	3	27	45	Under 5 ..... 5 upwards.			

The subjoined numbers have also to be taken in

Deaths occurring outside the District among persons belonging thereto.....								Under 5 ..... 5 upwards.			
Deaths occurring within the District among persons not belonging thereto...								Under 5 ..... 5 upwards.			

### District, classified according to Diseases, Ages, and Localities.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN  
UNDER FIVE YEARS OF AGE.

4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Membranous Croup.	FEVERS.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever.	Ague.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All Other Diseases.	TOTAL.
	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.													
																	1	2
														3	2		4	9
2														1			2	5
											1		3	1	1		7	13
														2			4	8
													5	6	2		10	24
														1			7	8
													1	4	2		14	24
																1	1	2
													2	2	1		6	11
2														4		1	15	25
											1		11	16	8		41	81

account in judging of the above records of mortality.

[illegible]

(B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES  
 Officer of Health, during the year 1894, in the WESTBOURNE Rural

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICK- COMING TO THE KNOWLEDGE OF					
	Census 1891.	Esti- mated to mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.	
(a)	(b)	(c)	(d)	(e)					Typhus.	Enteric or Typhoid.
Funtington Parish .....	1,020	1,000	22	Under 5 ..... 5 upwards.						
Bosham Parish .....	1,258	1,270	43	Under 5 ..... 5 upwards.				2		1 2
Westbourne Parish .....	2,269	2,270	64	Under 5 ..... 5 upwards.		1 1	2 9			2
Rest of District .....	2,397	2,360	68	Under 5 ..... 5 upwards.			1 11			1
Westbourne Workhouse.....	140	130	2	Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
				Under 5 ..... 5 upwards.						
TOTALS .....	7,084	7,030	199	Under 5 ..... 5 upwards.		1 4	3 33	2		1 5



OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

[illegible]

WORTHING  
URBAN SANITARY AUTHORITY.

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pp. 125 et seq.

## URBAN SANITARY DISTRICT OF WORTHING.

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	1861.	1871.	1881.	1891.
Area in Statute Acres ..	584	584	979	1,425
Number of Inhabited Houses..	1,051	1,331	1,959	3,015
„ Uninhabited „ ..	51	129	178	174
„ Building „ ..	7	11	82	39
Population .. ..	5,805	7,413	10,976	16,606
Males .. ..	2,497	3,174	4,701	6,874
Females .. ..	3,308	4,239	6,275	9,732

The area of this Urban Sanitary District was extended to include the civil parish of Heene, and the District was incorporated as a Municipal Borough by a charter dated 15th August, 1890.

The above figures, previous to 1891, only deal with the old Local Board District of Worthing.

Heene forms now the West Ward of the new Borough, and it is more commonly known as West Worthing; there was, however, a portion of Heene in the rural district of East Preston up to 1890, but now the whole parish is incorporated.

The Borough of Worthing is formed out of two parishes; it comprises part of Broadwater and the whole of Heene; the rest of Broadwater is in the rural district of East Preston.

	Part of Broadwater.	Heene.	Total.
Area in Statute Acres .. ..	999	426	1,425
Houses Inhabited.. ..	2,742	273	3,015
„ Uninhabited .. ..	132	42	174
„ Building .. ..	31	8	39
Population, 1891:—			
Males .. ..	6,300	578	6,878
Females .. ..	8,615	1,113	9,728
Persons .. ..	14,915	1,691	16,606
Persons in 1881 .. ..	10,976	845	11,821

Worthing has thus increased its numbers by addition of area as well as by the growth of population.



The figures of these different areas at each census period are here shown :—

Year.	Total.	Worthing Urban.	West Worthing Urban.	Rural Heene.
1871 ..	7,840	7,413	276	151
1881 ..	11,821	10,976	689	156
1891 ..	16,606	14,914	1,542	150

Thus it will be seen that Worthing Urban District increased by 3,563 between 1871 and 1881, but these figures include the addition of 600 persons by taking in a portion of rural Broadwater. The increase from 1881 to 1891 with no change of area, was 3,938. Rural Heene remained stationary, while in West Worthing district, or Urban Heene, the increase was very rapid, there being nearly six times as many people in 1891 as there were in 1871.

When, on September 3rd, 1890, Worthing became a municipal borough, the whole area was divided into five wards.

The mean number of persons in each house in each ward at the last census is here shown :—

	Houses.	Mean No. of Inmates per House.
1. East Ward .. ..	510	5·4
2. Central Ward .. ..	1,091	5·7
3. North-east Ward ..	566	5·6
4. North-west Ward ..	575	5·0
5. West Ward .. ..	273	6·1
Total ..	3,015	5·4

The West Ward is the least over-crowded of all, as the houses are on the average much larger than in the rest of the district, and a large number of servants are kept; there are also some large schools which increase the average in each house.

The following figures show the number of houses and the number of inhabitants at the census of 1891. The excess of females is well marked, and doubtless this is owing to the number of schools, lodging houses, and private residences, where several female servants are kept. There is, in this district, a vast excess of unmarried females, and thus the birth-rate is low.

No.	Ward.	Inhabited Houses.	Male.	Female.	Total.
1.	East .. ..	510	1,171	1,621	2,792
2.	Central .. ..	1,091	2,572	3,697	6,269
3.	North-east ..	566	1,283	1,653	2,936
4.	North-west ..	575	1,270	1,647	2,917
5.	West .. ..	273	578	1,114	1,692
Total ..		3,015	6,874	9,732	16,606

BIRTHS AND BIRTH-RATE.

During the year 1894 the births of 339 children were registered ; of these 170 were male, and 169 were female.

Estimating the population in the middle of the year at 17,650, the birth-rate was equal to 19·2 per 1,000 persons living, against a rate of 23·4 in 1891, 22·4 in 1892, and 21·4 in 1893.

The rate varies very much in each Ward, and it depends upon the distribution of married women living at the child-bearing ages. For this reason the rate is low in the West Ward, and high in the North-east and North-west Wards.

In each Ward the births for the past year are here shown :—

No.	Ward.	Male.	Births. Female.	Total.
1.	East .....	36	23	59
2.	Central .....	45	48	93
3.	North-east .....	27	42	69
4.	North-west .....	54	43	97
5.	West .....	8	13	21
Total .....		170	169	339

The general birth-rate is low, and it has been steadily declining for several years.

In England and Wales the birth-rate during the year was 29·6 per 1,000 persons living, a rate 2·0 per 1,000 below the mean rate in the ten years, 1884-93.

It is of interest to compare the variations in the birth-rate during the last ten years under the Local Board, bearing in mind that the addition of the West Ward has slightly helped to lower the rate.

Year.	Births.	Birth-rate.	Year.	Births.	Birth-rate.
1881 ..	324 ..	29·2	1886 ..	366 ..	27·7
1882 ..	355 ..	30·7	1887 ..	327 ..	24·5
1883 ..	313 ..	25·7	1888 ..	322 ..	23·3
1884 ..	352 ..	27·8	1889 ..	362 ..	25·6
1885 ..	327 ..	25·0	1890 ..	338 ..	23·1

GENERAL MORTALITY.

There were 219 deaths registered in this district during the year 1894, but to this number must be added the deaths of five persons belonging to this district in East Preston Workhouse, which is outside the area. From this total number of 224 there must be deducted the deaths of two persons in the Worthing Infirmary, who came from outside the district, leaving a total of 222 deaths.



This number includes the deaths of 19 persons who are reckoned as visitors, and also of 13 men who were drowned when the s s. *Zadne* was wrecked.

Estimating the population in the middle of the year at 17,650, the death-rate was equal to 12·6 per 1,000 persons living; excluding persons not belonging to the district, the rate was equal to 10·7 per 1,000.

The variations in the death-rate in the Local Board District during the ten years previous to 1891 have been as follows :—

Year.	Deaths.		Death-rate.	
	Including Visitors.	Excluding Visitors.	Including Visitors.	Excluding Visitors.
1881.....	170	150	15·3	13·5
1882.....	160	142	13·8	12·3
1883.....	164	151	13·4	12·4
1884.....	205	177	16·2	14·0
1885.....	178	161	13·6	12·3
1886.....	228	210	17·2	15·9
1887.....	231	206	17·3	15·4
1888.....	220	187	15·9	13·5
1889.....	179	145	12·6	10·2
1890.....	218	181	14·9	12·3

The following table shows the deaths in each Ward occurring in a population estimated in the middle of the year at 17,650; it includes the deaths of all persons not belonging to the district, and also the five workhouse deaths. The corresponding figures for the three previous years are also given.

#### DEATHS.

No.	Ward.	Deaths.			
		1891.	1892.	1893.	1894.
1.	East .. ..	52	28	76	53
2.	Central .. ..	136	103	139	82
3.	North-east ..	72	42	76	27
4.	North-west ..	56	49	94	44
5.	West .. ..	25	26	41	16
Total .. ..		341	248	426	222

The mortality in each quarter of the past four years is here shown :—

	Total.	Total.	Total.	Total.	Male.	Female.
	1891.	1892.	1893.	1894.		
First Quarter ..	107	86	73	55	19	36
Second Quarter ..	74	50	112	53	30	23
Third Quarter ..	56	54	181	47	16	31
Fourth Quarter ..	104	58	60	67	37	30
Total .. ..	341	248	426	222	102	120



The deaths in each quarter at various groups of years are here shown :—

	Under 1 year.	1 to 5.	5 to 15.	15 to 25.	25 to 65	65 and over.	Total.
First Quarter ..	9	7	2	—	20	17	55
Second Quarter ..	10	5	3	4	12	19	53
Third Quarter ..	6	4	1	1	16	19	47
Fourth Quarter ..	14	6	2	4	23	18	67
Total ..	39	22	8	9	71	73	222

### INFANT MORTALITY.

The *infant mortality* is here given as measured by the number of deaths under one year of age to the total number of births in the year :—

No.	Ward.	Births.	Deaths under one year.	Ratio to 1,000 Births.	1891.	Ratio in 1892.	1893.
1.	East ..	59	6	102	87	32	159
2.	Central ..	93	10	107	127	109	84
3.	North-east	69	7	101	170	49	143
4.	North-west	97	14	144	158	95	227
5.	West ..	21	2	95	200	59	100
Total ..		339	39	115	140	78	145

The mean ratio for the past four year is 119 deaths to 1,000 births.

The rate of infant mortality in the local Board District for the ten years 1881-90 was in

Year.	Ratio.	Year.	Ratio.
1881 ..	86	1886 ..	147
1882 ..	95	1887 ..	100
1883 ..	105	1888 ..	93
1884 ..	122	1889 ..	77
1885 ..	88	1890 ..	136

Giving a mean ratio for that decade of 105 deaths to 1,000 births.

The 39 *infantile* deaths included two from whooping cough, one from tabes mesenterica, one from hydrocephalus, two from tuberculosis, four from convulsions, eight from lung diseases, one from gastritis, two from debility, seven from marasmus, one from an accident, and one from influenza; nine infants were born prematurely.

In England and Wales the proportion of deaths under one year of age to registered births was 137 per 1,000 during the past year, the mean proportion in the preceding ten years having been 147.

## ZYMOTIC MORTALITY.

The deaths from zymotic diseases were 3 in the case of those which are notifiable, and 7 in the other class where the number of cases cannot be obtained, or a total of 10 deaths in all, with a zymotic mortality of 0.56 per 1,000.

				Cases.	Deaths.
Fever.	Small-pox	..	..	2	none
	Scarlatina	..	..	6	none
	Diphtheria	..	..	12	2
	Membranous Croup		..	none	none
	Typhus	..	..	none	none
	Enteric	..	..	10	none
	Continued	..	..	none	none
	Relapsing	..	..	none	none
	Puerperal	..	..	1	1
	Cholera	..	..	none	none
	Erysipelas	..	..	4	none
Total				35	3

In the other class the deaths were as follows :—

	Deaths.
Measles	1
Whooping Cough	6
Diarrhœa and Dysentery	none
Rheumatic Fever	none
Total	7

There were also three deaths from influenza during the year.

The Infectious Disease (Notification) Act, 1889, came into force on August 3rd, 1890. There is no Isolation Hospital in the district.

The Infectious Disease (Prevention) Act, 1890, came into operation on July 4th, 1891.

The Public Healths Acts Amendment Act, 1891, came into operation on July 4th, 1891.

The prevalence in each quarter of each notifiable disease is shown in the following table :—

	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total
Small-pox	—	—	2	—	2
Scarlatina	2	1	2	1	6
Diphtheria	3	2	4	3	12
Enteric Fever	3	1	4	2	10
Puerperal Fever	—	—	1	—	1
Erysipelas	—	3	1	—	4
Total	8	7	14	6	35

SMALL POX was imported into the Borough early in July. Harry D., 37 years old, a navvy, left London on June 17th, where he had last slept in a model lodging-house in Whitechapel. Being out of employment he walked down to Worthing in search of work. On June 26th he was employed on the drainage works here, and slept at the Travellers' Rest in Clifton Road; on June 27th he first felt ill, and left off work in the evening; the next day he walked about in the fields, but he felt sick and had cold chills; he resumed work on June 29th and 30th. On July 1st there was a pustular rash all over the face, body, arms, and legs when I saw him in the evening of that day. Two hospital tents were put up in the disused ashyard at East Worthing and the man was removed there in the evening of July 2nd, a trained nurse having arrived in the meantime. The patient was well isolated, and he was discharged on July 26th, when he returned to London, being provided with an entirely new change of clothes. He had four fair marks of vaccination on his left arm, having been vaccinated in infancy by an army surgeon.

Charles S., 25 years old, came from Uxbridge to Worthing on July 25th, and worked in a market garden. He slept in the same room as Harry D., but no one slept in this room after July 1st when the disease was first recognized. He was taken poorly on July 12th, and the rash of small-pox first appeared on July 14th in the evening; he was at once removed to the hospital tent and attended by the same nurse as Harry D. He had a mild attack, and on August 6th he was discharged convalescent with an entirely new suit of clothes. He had three fair vaccination marks. The house in which these men slept was disinfected twice, once on July 3rd, and again on July 15th, as soon as the men had been removed. The bed and bedding in each case were burnt at once. The old suits of clothes and the bedding, &c., in the hospital were also burnt. There were thirteen inmates in the house on July 1st, including an unvaccinated child, but there was no further spread of the disease. No one engaged on the drainage works was attacked, nor was there any other case in the town.

Vaccination and revaccination was recommended but no one was willing to accept the offer. Each patient was isolated in the "Rest" directly the rash appeared, but in the first case the patient had to remain a whole day in the house until the tents were erected.

The patients were maintained, nursed, and clothed at the expense of the Sanitary Authority.

## WATER SUPPLY.

The temporary wells at Broadwater yielded an excellent and abundant supply of water during the year.

Many schemes were also discussed as to the provision of a permanent supply of water to the Borough; these are shortly described in a report which was made by a Committee on March 20th, on which date site No. 8 was adopted and the new works were soon afterwards commenced.



Mr. Baldwin Latham made a long and interesting report on the subject after making a hydro-geological survey, and the following extracts from his report show his views on the matter :—

“I have to report to you that I have so far completed the hydro-geological survey of that part of the South Downs which is likely to afford a supply of water to Worthing, as to be able to point out the positions which might be selected for the purpose of constructing a Water Works. I should observe, however, that the surveys are not so complete as I should have liked them to have been, but they are now sufficiently advanced to determine with absolute certainty which are the most suitable areas from which water in abundance can be procured for Worthing. In this case, the area I have had to deal with includes the whole of the district between the rivers Adur and Arun, extending from the sea at the south, and northwards to a line which represents the numerous springs which break out on the northern escarpment of the South Downs, and which flow out over the lip of the Gault.

“There is no large quantity of spring water from the chalk in your neighbourhood which is discharged directly into the sea; the only channel of any size is that of the Lancing Brook, all the other areas either discharge into the Arun or the Adur, or into the tributaries of these rivers, and it is an entirely mistaken notion to imagine (the conclusion to which some persons seem to have come) that the waters of the South Downs flow down the various natural valleys, in which these slopes are divided, direct into the sea.

“Those who have studied the geology of Sussex know full well that the sea, long after the deposition of the chalk, once covered a large area about Worthing, and that formerly the appearance of the coast about Worthing must have been very little different from what now is found to exist on the same coast to the west of Selsey Bill, in which large arms of the sea pass inland. It is also known that within the last 200 years a considerable area of land in the neighbourhood of Lancing has been reclaimed from the sea, and through the area so reclaimed, the largest springs of the district are discharged. A geological examination of the district shows distinctly that to the west of Worthing there exists a deep trough filled with impermeable tertiary strata, which extends to the river Arun, and, in all probability, continuing in the form of isolated pockets past Worthing and nearly to the river Adur, and which are filled with the debris of strata which forms a more or less impermeable barrier, and it is this trough-like formation which gives the direction to the flow of the underground water in this particular neighbourhood, so that the waters, instead of running down the valleys from the Downs, direct to the sea, flow from a certain point in an easterly and western direction to the rivers Adur and Arun. It must not be understood that underground water does or does not always move down the valleys, for it is quite evident in this district that the waters at times do move directly down the valleys, and directly across the valleys, and out of them, and also up the valleys. An examination of the neighbourhood of Findon shows clearly by the depression which takes place in the underground water line in this village, that there is an easterly flow out of the valley, the indications



being identical with those which are described in a paper read by me before the British Association in 1877, upon "Indications of movement of water in chalk," and which was published *in extenso* with illustrations in the volume of the Reports of the British Association for that year.

"I find also, from evidence I have been able to collect with reference to the Findon Valley, that when the springs in this neighbourhood are very high, as was the case in the year 1877, the underground waters break out as they did in that year, in the valley at a point about 100 feet above Ordnance Datum, and flowed down the valley over the surface towards Worthing in the form of a true bourne flow.

"In the valley above Halewick Farm there is every appearance, from the observations already made, and which have been greatly assisted by the rapid rise of the water in the ground during the last month, that the underground waters at one period of the year flow up this valley, while it is not improbable that at another period, when the springs are high, the flow will be down the valley, or in an entirely opposite direction to that in which they were moving for many months last year.

"It will also be noted that another feature in this district is that in many valleys, especially to the west of Worthing, the underground water is dammed back by the trough of tertiary strata, and the underground flow of the water is diverted east and west in lines parallel to this trough, and that along the edge of this trough of tertiary strata there exist numerous swallow holes, through which, in a wet season, surface water has direct access to the strata beneath. In selecting any position for a future site of Water Works for Worthing, it would be well to keep clear of these swallow holes, for fear of impurities entering the strata by these direct channels, and so contaminating the water supply.

"I have as near as possible defined the dividing line of the drainage area between the rivers Adur and Arun, and I call all the district to the east of the dividing line, and which drains to the Adur—the Worthing District—as distinguished from the area west of the dividing line, and which drains to the Arun—the Littlehampton District; not that Littlehampton can command this large district, as, unfortunately, the great water-bearing area of chalk is cut off from Littlehampton by the deep trough of tertiary strata to which I have before referred, and which limits the area available for the supply of Littlehampton. This, however, is not the case in Worthing, as the trough is not continuous, but, as I have already pointed out, consists of a series of isolated pockets, the great outlet for water being in the south-eastern corner of the area extending from Lancing Brook, round the banks of the Adur as far as Coombes.

"I have also taken into consideration the amount of rain which falls upon the area, contributing the water supply to the area located between the rivers Adur and Arun, and I have found that the amount of rain falling upon this area is somewhat greater than that which falls upon a corresponding area in the North Downs, and is, on an average of years, about 33 inches in depth per annum.

“The gauging of the various springs and streams have occupied a very considerable time, and in order to ascertain the volume of water flowing at various points, over 100 separate springs and streams have been gauged, many of them on several occasions, and the volume of water escaping has been determined with considerable accuracy. The springs of the chalk fell last year to a point lower than they have been for some time, but, of course, not so low as has occurred in the past, and may occur again in future years. It was of the utmost importance, therefore, to determine with accuracy the volume flowing from any given area, as from it could be deduced the probable yield at any future time of any area.

“The Worthing area, which embraces all the area draining to the river Adur extending to a line north of the South Downs, on which the various springs which break out on that side of the Downs were gauged, contains an area of 35 square miles, and yielded last autumn, over a period extending from the 18th October to the 24th November, about 24 cubic feet per mile per minute, or over seven million gallons per day from the entire area. This, it should be stated, was in a dry and low water period, and of this quantity over five million gallons a day were flowing out of this district at the south-east corner of the area. The largest amount of spring water flowing from the district escapes at New Salts Farm; the next largest by Lancing Brook, whilst Ladywell Stream yielded in the driest period of last year over  $1\frac{1}{3}$  million gallons per day. It will be noted that in the Reports already made to you, Ladywell Stream is treated as a very insignificant affair, and only sufficient for the supply of Lancing College, instead of being the large and beautiful stream it is, escaping into the Adur after all demands upon it had been satisfied.

“I am sorry that I should have to differ from some of the eminent authorities who have reported and advised upon the water supply of Worthing, but in what I have to say I simply deal with the actual facts, and neither with opinions nor theories. Now it has been stated in a Report presented to you by an eminent geological authority, that your present temporary pumping station at Broadwater derives its supply of water from a collecting area of only one square mile in extent, which is called the Charman Dean area. The quantity of water pumped at Broadwater during the period I was gauging in the district was 72 cubic feet per minute. It is quite impossible, therefore, having regard to the volume of water actually gauged in this district, that such a volume as this could ever have been supplied from one mile in area, as it must have used up the whole of the water available from three square miles, but the pumping at Broadwater has never exhausted or depressed the springs, which are still flowing in large volume, showing that these Works are drawing water from a very much larger area than has been contemplated by those who advised to the contrary. It is quite clear, however, that one square mile during last autumn could never have yielded the quantity of water which was actually pumped, which would have been equivalent to a depth of  $16\frac{1}{3}$  inches per annum from the area, and if in last autumn the flow was at this rate when the springs were at their highest in the middle of April, the rainfall then must have exceeded 49 inches in depth per annum. Taking an average between these two amounts, the actual quantity



must have greatly exceeded the actual fall of rain upon the area, without making any allowance for loss by evaporation or from other causes.

“ In the course of the hydro-geological survey of the area between the rivers Adur and Arun, over 500 wells have been levelled and measured, and the levels of the water taken from time to time, so as to get the fall of the underground water, and also the rate of fluctuation which is taking place in different parts of the area since the waters have risen, which is a most important element in determining the direction of the flow ; and it was not really until the waters had risen within the last month that these points could be determined with accuracy. Many borings which have been made in the district have also been levelled, and the water levels ascertained, involving, in many cases, the removal of the pumping gear, in order that an observation might be taken.

“ Having so far dealt with the matter generally, I must now point out to you what should guide you in the selection of a future site for Water Works. These principles have been very ably laid down by Professor Boyd Dawkins in his Report to you, that you should be ‘ guided by two principles. Firstly, that the supply of water should be ample in quantity, both now and for future needs, and that it should be above suspicion with regard to quality.’ The places which have been suggested, however, for future water supply have been near Offington Corner, and at Halewick Farm. I find the former site was condemned in the Report of Mr. Henry Willet, F.G.S., and Professor Boyd Dawkins, F.R.S., on the ground that it commands the surface drainage of the Findon Valley, which is inhabited by an increasing population, and that the lower portions of the Valley are converted into highly-manured market gardens ; that new villas had been built, and new training stables had been established, and that the whole of the sewage at Findon found its way into the chalk and ultimately into the water ; and it was stated that the bare possibility, however remote, of contamination of the site was undesirable, under the present unfortunate circumstances of Worthing, and the present state of public opinion. It is also alleged that the pumps at Offington would draw upon the wells of Findon Valley, and might seriously inconvenience the population now badly-off for water ; and further, that possibly a railway may be made at some future time up the valley is a further objection. Now, it should be observed that the village of Findon is about two miles above Offington Corner, the point at which it was proposed to seek for water. It may be quite true that in a low water period the wells of Findon yield little water, simply on account of their being too shallow. There is water under this village sufficient for its requirements, and if the existing wells were only deepened it could be easily procured and it would be utterly impossible for a pumping station located below the village to have any material effect upon the water supply of the village above, as all the water would naturally flow from the village to the pumping station ; and as long as there was water to supply the pumping station there must be water to supply the village, just the same as in a river—the actual abstraction of water by pumping at a particular point on a river only affects those below that point, and not those located above it. Of course, if a pumping station were established at Offington, the places likely to be affected would be those below Offington and not above.



“ Then an alternative site was suggested at Halewick Farm, to the north-east of Worthing, but close to the populous district of Sompting ; this site having been selected with the idea that the waters in this neighbourhood would flow from the Downs in the direction of Halewick Farm, but a very small amount of accurate surveying speedily demonstrated the fact that the flow of water at Halewick Farm, during the low water period of last autumn, was in a direction up this valley, and not down it ; and this information I conveyed to your advising Engineer, Mr. Mansergh, on the 9th October last, and to your Medical Officer of Health, Dr. Kelly, on the following day. I also prepared and supplied a plan showing the water levels of the district, on the 16th October, in order that you may stay your hands before proceeding to construct Water Works at this particular point, as within a third of a mile of the position of the well, the village of Sompting containing a population as large as Findon, was located directly above it, and it was also likely to be affected by other populous districts near it, and draining in the direction of the proposed site ; so that if Offington Corner site was an undesirable site, judged by the principles laid down as to purity of site, then Halewick Farm must have been infinitely worse. It was stated that in the case of this Halewick Farm site that the area draining to it was four square miles in extent, but that calculation is entirely based upon an erroneous idea that the water descended the valley towards the site selected. It is hardly needless to say that as the flow was proved to be in an opposite direction to that indicated, no such area would have been commanded if a well had been sunk at the particular spot indicated.

“ With regard to the present temporary pumping station at Broadwater, I must point out to you that this pumping station to which I have already referred, does not derive its water supply from the mile in area to which attention has been directed, but it is located on the direct underground flow from a very large area, not less than  $11\frac{1}{2}$  miles in extent, so that the large quantity of water which has been pumped for the supply of Worthing forms but a small part of the whole of the water available at that spot. No better possible position could have been secured for getting a good supply of water at short notice than that which was selected for the temporary pumping station, as the spring waters are found so close to the surface of the ground. I am aware that the site has been objected to on the ground that the level is too near the sea level, but the underground water levels in a low water period at this point are absolutely higher, after allowing for any depression caused by pumping, than the waters would have been at a pumping station near Halewick Farm, and they are higher than will be found in a low water period at most other points round Worthing that would yield abundance of water. The threatened danger to the temporary pumping station is not a present one, but something that may arise in the future when a probable population surrounds the site. The actual population located on the underground area contributing water to this site is comparatively small when compared with drainage areas on the chalk formation furnishing water supplies in other places, the actual population located within the drainage area to the temporary pumping station not being more than 120 people to the square mile. The entire population of the whole of the Worthing area of 35 square miles, draining to the river Adur and the sea, was, at the last census, about 22,454 persons, or 642 persons



per square mile. The entire Littlehampton area, draining to the river Arun, is  $41\frac{1}{2}$  square miles, containing a population at the last census of about 10,234 persons, or 247 persons per square mile. In contrast with these figures, I may point out to you that at Croydon the old Water Works, located in the centre of the town, and at present supplying more than two-thirds of the water distributed by the Corporation of Croydon, had at the last census a population of over 1,800 persons per square mile, and of that population, at least 500 persons per square mile drain direct into cesspools in the chalk formation, which are rarely, if ever, emptied; and this population is one which has been, and is still increasing at a quick rate, the increase between the census 1881 and 1891 being from 1,400 to 1,800 per square mile, and draining into cesspools from 400 to 500 per square mile. I need hardly say that I should not recommend any Sanitary Authority to take water under such conditions as these, as I consider such a large population on a chalk drainage area renders such a source improper, and very unsafe as a source of water supply.

“The process by which rain becomes spring water in the chalk formation is ordinarily very slow. On examining the chalk formation above the water line, it is found to be completely saturated with water, and when the balance of the rainfall, after evaporation, enters the earth near the surface, it displaces a corresponding quantity that has been held in the chalk at the bottom or near the water line, and the amount of water actually pushed out from the strata varies with the amount of rain that enters the ground; as a rule, the rain in sound chalk strata would only descend on an average about a yard every year, so that the number of yards in depth of a chalk well, from the surface of the ground to the water line would roughly indicate the number of years the rain of any particular year would require to descend to the water line. In some deep wells of your neighbourhood many years would elapse before you could drink the actual water which fell in any particular year. Long exposure of water in the chalk in this way is absolutely destructive to all germs and spores of disease. The case, however, is very different when the strata are fissured when the effects of pollution may be immediate, as water passing down or along a fissure can travel a long distance in a very short time.

“It may be taken for granted that there is no area sufficiently large in itself anywhere in the vicinity of Worthing from which sufficient water can be procured for the supply of Worthing, and which is entirely free from the influence of populations.

“Upon the accompanying plan I have indicated three sites, marked respectively, **A**, **B**, and **C**, which are the sites in the neighbourhood of Worthing freest from pollution.

“The site **A** is located in the parish of Broadwater, and would collect water from the parishes of Clapham, Sullington, West Tarring, Findon, Broadwater, Washington, and Sompting; it has an underground drainage area that could be commanded with sufficient length of adits of nearly 11 square miles, and has a population living on the collecting area of about 110 persons to the square mile. A well sunk at this point with adits would be capable of supplying, if required, about two million gallons of water per day in a low water period.



“The site **B** is located in the parish of Coombes, but the adits might extend into the parish of Sompting; it has a drainage area of over four square miles, located in the parishes of Wiston, Findon, Steyning, Bramber, Botolph's, Coombes, and Sompting. This drainage area is very sparsely populated, the population being only about 10 persons per square mile, and at a low water period it would be capable of supplying about 750,000 gallons per day.

“The site **C** is not located within what I have called the Worthing drainage area, as the waters which might be collected at this site at present make their way into the river Arun. The apparent drainage area of this site is much larger than the actual underground area draining to it which is a little over five miles, located in the Parishes of Parham, Angmering, Clapham, Burpham, Patching, Findon, Storrington, and Amberley, and is sparsely populated, containing a population of twelve persons per square mile, and will be capable of supplying, in a low water period, not less than 900,000 gallons per day. It is quite possible, however, that with a pumping station located at the points **B** and **C**, the water supply would hereafter increase with the increase of fall from the Downs created by pumping. At the present time, a part of the waters which are found in the apparent drainage area, in the neighbourhood of **C**, flow away in a northerly direction, forming the head waters for the river Stor, a tributary of the river Arun, and other streams flowing into the river Arun, but the height at which these springs break out is such as to retain a large amount of water in the top of the Downs, as the lowest spring breaks out at a level of 140 feet above Ordnance Datum.

“In all cases with which I have been dealing, I have taken the quantities of water likely to be yielded at such place at a low water period at less than has been recorded during the past year, and such low water periods as occur would generally take place in a dry year about the months of November and December, when there is the least legitimate demand for water (the great waste taking place in time of frost excepted). In the summer months, when the consumption of water in Worthing would be very much greater than at other times, a larger volume of water would always be available from any of the areas to which I have referred.

“It appears to me, taking all things into consideration, that the most suitable site, having regard to the future prospects of Worthing and any future expansion of the district, would be site **C**, provided a well is sunk somewhere about the point indicated, and sufficiently far removed from the swallow holes which exist all along the northern side of the tertiary trough to which I have before referred, and which are located about three-quarters of a mile to the south, south-east, and south-west of the proposed site **C**. The sunk well at this point ought not to pass below the level of Ordnance Datum, and the adits should be driven out in the direction indicated by the red lines on the Plan, namely, to the south-east and to the west. A boring might be put in the bottom of the well, but I do not think it would increase materially the supply of water; and if this site was selected, Worthing would possess a site unsurpassed in the country for the purity of its water supply and the freedom from risk and liability to contamination.

“ The interception of the underground waters at the point **C** would not, in my judgment, injuriously affect the water supply of the wells in the immediate neighbourhood; and as the area from which water would be taken affects only about one-eighth of the entire Littlehampton drainage area, the waters taken would not be missed, or likely to injuriously affect the interest of the landowners in the neighbourhood.

“ The site marked **B** is also a very good site, and ought to be sufficient to meet the requirements of Worthing for many years to come; and should circumstances arise that you could not get the site **C** in Patching, then you could fall back upon the site **B**, and in this site you would possess a safe and valuable source for the future water supply of Worthing.

“ In the course of my investigations of the ground waters of the neighbourhood of Worthing, I have found a condition occurs which seems to me to be extremely favourable to Worthing, as having a tendency to temper its climate in the winter period. It will be noticed on the Ordnance Plans that there is a large area to the north-east of Worthing which is marked on the plan ‘liable to floods.’ Now, any one who has any acquaintance with the chalk districts knows that flooding is an exceptional circumstance in such districts; that such floods as arise from ordinary rain rarely occur; and the flooding in this instance clearly does not arise from any such cause, but is almost entirely due to the penning back of the underground water by the tides at the time of high water, and the insufficiency of the outlets for its escape. This spring water has its natural outlet in Lancing Brook and Salts Farm. The volume of this water, when the springs are high, will exceed thirty million gallons per day, and the water having a high temperature as it leaves the ground, probably never less than 50° Faht., and rising as it does when in large volume to the surface of the ground in the cold season, must have a most marked influence in moderating the winter, especially when a north-easterly wind prevails.”

For various reasons sites **B** and **C** were not chosen, and site **A** is quoted as No. 7 in the following report of the Committee, of which Alderman Piper was chairman.

Site No. 8, the one eventually chosen, is practically the same as No. 7, but about 200 yards to the north and closer to the chalk pits.

“ In compliance with the resolution adopted at the last Council Meeting, your Committee submit a list of sites available for Water Works, and which can be obtained on the terms stated.

“ To admit of a ready comparison, information with respect to these sites is appended in tabular form :—



SITUATION.	EXTENT OF SITE AND TERMS OF SALE.	ADVANTAGES ATTENDING ACQUISITION OF SITE.	DISADVANTAGES.
<p>No. 1.</p> <p>Land forming part of Halewick Farm, in the Parish of Sompting, belonging to Lord Leconfield.</p>			<p>This site Mr. Baldwin Latham, the Hydrogeological expert, who has been advising Mr. Mansergh in the matter, does not recommend. His surveys show that the flow of water during the low water period of last year was up the valley, and might, therefore, by possibility, be affected by the Village of Sompting. The area draining to this site is also stated by Mr. Latham to be but small.</p>
<p>No. 2.</p> <p>Land in Durrington Parish, south of land where the West Worthing Waterworks and Baths Company are building a reservoir; belonging to Mr. Robert Holmes.</p>	<p>Eight acres; £140 per acre, with right to tunnel for £5, and compensation for damage; Mr. Holmes' property to be supplied with water at 6d. per 1,000 gallons.</p>		<p>Mr. Baldwin Latham advises that, in a low water period, there would not be sufficient water for the town's purposes. Mr. Mansergh also states that he cannot approve this site.</p>
<p>No. 3.</p> <p>Findon Valley, north of Offington Corner.</p>	<p>Four acres in valley for pumping station; one acre on hill for reservoir; £1,450— (£290 per acre).</p>		<p>Mr. Henry Willett, F.G.S., Professor Boyd Dawkins, and Mr. Latham do not recommend the selection of this site.</p>
<p>No. 4.</p> <p>Land in Sompting Parish, near the south-east corner of Charman Dean.</p>	<p>Five acres for pumping station at £250 per acre, two acres on hill for reservoir, £125 per acre — £1,500.</p>	<p>It is understood, from Mr. B. Latham's statements, that the advantages attached to this site are identical with those appertaining to sites Nos. 7 and 8.</p>	
<p>No. 5.</p> <p>In Patching Parish, adjoining the Long-Furlong Road, about 3½ miles from Goring Station; owner, the Duke of Norfolk.</p>	<p>Ten acres, including reservoir. £50 per acre, compensation to tenants; a royalty on every 1,000 gallons of water. The Corporation to supply all present houses, farms, buildings, ditches, and ponds, on a defined area with water, and other conditions as to water supply, and further conditions and restrictions. The Committee has not attempted to obtain any modification of these terms.</p>	<p>A site unsurpassed in the country for the purity of its water supply, and the freedom from risk and liabilities to contamination.</p>	<p>Terms of private sale are excessive and onerous. If Council procured an order to purchase compulsorily under Lands Clauses Act, no doubt they would not be obtained, but delay would be caused by seeking an order. Cost of laying mains to Worthing would be great, and carriage of coals, &amp;c., from Railway Station considerable. Water supply at a low water period, estimated at 900,000 gallons per day.</p>



SITUATION.	EXTENT OF SITE AND TERMS OF SALE.	ADVANTAGES ATTENDING ACQUISITION OF SITE.	DISADVANTAGES.
<p>No. 6.</p> <p>In Coombes Parish, on the Downs, about 3 miles from Lancing Station; owner, Lord Leconfield.</p>	<p>Not ascertained, but perhaps such as the Council could accept.</p>	<p>The area is over four miles in extent; and as the population does not exceed ten persons per square mile, it may be assumed that the purity of the water supply equals that of site No. 5.</p>	<p>It is estimated that the water supply at a low water period would not exceed 750,000 gallons per day; the site is difficult of access, and its distance from Worthing and Lancing stations would add greatly to the cost of the work and the working expenses.</p>
<p>No. 7.</p> <p>In Broadwater Parish, on the east side of the road leading to the Broadwater chalk pits, about 1½ miles from Worthing Station; owner, Major Gaisford.</p>	<p>Fifteen acres, £3,400 without restrictions or conditions of any kind.</p>	<p>Commands a drainage area of nearly eleven square miles, and a well with adits will supply about 2,000,000 gallons of water per day.</p>	<p>Does not include a site for reservoir; right to tunnel does not extend beyond area of site.</p>
<p>No. 8.</p> <p>In Broadwater Parish, north of the last-mentioned site; owner, Lieut.-Col. Wisden.</p>	<p>Five acres south of road adjoining chalk pit for a pumping station; two acres north of chalk pit, and adits as Mr. Mansergh may advise</p>	<p>The same as No. 7, but with a site for reservoir and extended rights to tunnel. This site is classed by Mr. B. Latham with Nos. 4, 5, 6, and 7, as freest from pollution in the neighbourhood of Worthing.</p>	<p>Adits of greater length than those needed at site 7 will perhaps have to be constructed.</p>

“Your Committee have given their serious consideration to each of these sites. Each site has some advantages, and is in some respects suitable. The object, of course, is to secure not merely a good, but the best site for an abundant supply of the purest water, least liable at any time to contamination. Your Committee are unanimous of opinion that Sites Nos. 1, 2, 3, 5, and 6, need not be further considered, and they hope before the Meeting of the Council to be able to report further on the three remaining sites.”

An agreement was made with Lieutenant-Colonel Wisden to purchase 5½ acres of land for the new Water Works, of which two acres for a reservoir were on some high land above the chalk pits, and 3½ acres for a well on some loamy land just below the chalk pits.

Three contracts were then entered into :—

No. 1 with Messrs. Tilley and Son for sinking a well and other undertakings connected therewith, at an estimated cost of £2,898.

No. 2 with Messrs. Haythorn, Davey, and Co. for engine boilers, pumps, and other works connected therewith, at an estimated cost of about £5,000.

No. 3 with Messrs. Wilkinson and Co. for the construction of a reservoir, cottages, storehouse, and the water mains laid into the town, at an estimated cost of £14,500.

Messrs. Tilley and Son began operations in the spring, and by the end of the year a well 12ft. in diameter and 110ft. in depth had been sunk and lined with bricks. Water was reached at a depth of 50ft., but not in sufficient quantity. At the distance of 110ft. from the surface, an ample supply was obtained, and eventually it is expected to yield about one and half million gallons per day.

The reservoir has not yet been begun, nor have any fresh mains been laid, as the works are not yet in a sufficiently forward condition. The engines, boilers, and pumps are completed.

The Water Works will probably be in good working order in the course of next year.

In the meantime the present excellent supply to the Borough prevents any necessity for unduly hastening on the new works, so that due care can be taken that the work is well done.

### WASTE OF WATER.

Early in May steps were taken to ascertain the yield of water from the Broadwater works and the waste of water which was being occasioned by defective mains and services.

On May 8th, the following return was sent in by Mr. Aspinall, the Borough Surveyor, and it was resolved that he should take measures to prevent this excessive waste.

“There are three pumps at the works, two of these are in constant use, and the third pump is worked from 8 a.m. to 6 p.m.

“One of the pumps is employed to fill the tank at the Water Tower, and the following table shows the quantity of water pumped into the tank from midnight to 8 a.m.

				April 12th. Gallons.		April 19th. Gallons.
Quantity in tank at midnight	..			59,000	...	64,000
” ” 1 o'clock	..			68,000	..	73,000
” ” 2 ”	..			77,000	..	79,000
” ” 3 ”	..			84,000	..	87,000
” ” 4 ”	..			91,000	..	94,000
” ” 6 ”	..			98,900	..	110,000
” ” 7 ”	..			104,000		
” ” 8 ”	..			110,000		

“ At midnight, on April 29th, the quantity of water in the tank was 78,000 gallons.

“ By working the 3 pumps—

	Gallons.		Gallons.
The quantity at 12.15 was	86,000	an increase in 15 minutes of	8,000
„ 12.30 „	91,500	a further increase of .. ..	5,500
„ 12.45 „	97,500	„ „ .. ..	6,000
„ 1.0 a.m. „	104,000	„ „ .. ..	6,500
			<hr/> 26,000 <hr/>

“ The water was pumped into the tank against a pressure of 75lbs. per square inch, equal to 174 feet high.

“ Pumping ceased at 1 a.m., and the water was turned into the mains with a pressure of 30lbs.

	Gallons.
At 1.15 a.m. the quantity of water which } had passed out of the tank was }	7,500
At 1.30 a.m. „ „ ..	11,000
At 1.45 a.m. „ „ ..	14,750
At 2.0 a.m. „ „ ..	18,000
Deducting the quantity estimated as } necessary to fill mains, &c. .. }	4,000
	<hr/>
Probable waste .. ..	14,000 <hr/>

“ At midnight, on the 2nd May instant, water (there being then 80,000 gallons in the tank), was turned into the mains at 20lbs. pressure.

	Gallons.
At 12.30 a.m. the quantity of water } which had passed out of the tank was }	6,000
At 1.0 a.m., additional quantity ..	5,000
	<hr/>
Total .. ..	11,000 <hr/>

“ The pressure being then increased to 30lbs.—

	Gallons.
At 1.30 a.m., the further quantity of } water passing out of the tank was .. }	8,000
At 2.0 a.m., additional quantity ..	7,000
	<hr/>
Total .. ..	15,000 <hr/>

“ A probable waste of 26,000 gallons in two hours.

“ Estimating the daily quantity of water delivered into the mains at 544,000 gallons, the supply exceeds 38 gallons per head of the population.



“ At Leamington, where steps have lately been taken to prevent waste of water, the supply is estimated at 15 gallons per head.”

The work was begun on May 18th, by testing the water mains by two of Deacon's meters, and thus the defects on private premises were detected and notices served to stop the waste.

So effectual were the measures taken by the Surveyor that by working day and night up to June 26th, he was able to report that up to that date the waste actually stopped was 106,800 gallons in 24 hours.

On October 9th the waste stopped amounted to 197,520 gallons each 24 hours, and there was ample water pressure during the day with all the water-carts out.

This result must be considered most satisfactory. After that date the night inspections were reduced from six to two, as the greater part of the work had been done.

#### HONORARY FREEDOM OF BOROUGH ACT, 1885.

On October 25th, Mr. Edward Harrison, of Lyon's Farm, Broadwater, was admitted an Honorary Freeman of the Borough for the eminent service he rendered by placing at the disposal of the Council, without charge, at a very grave emergency in the year 1893, a suitable site where they were enabled to obtain an abundant supply of pure water.

This was the first time that such a distinction has been granted by the Council.

#### SEWERAGE AND DRAINAGE.

A new main system of sewerage was commenced during the year under the direction of Mr. Mansergh.

It consists of three portions :—

1. A main sewer from Grand Avenue in West Worthing passing through Bath Road, Manor Road, Rowland's Road, Montague Street, South Street, Ann Street, High Street, Tower Road, and then into the Park where there is a junction with the existing main sewers. This work has been carried out in a most excellent manner by Mr. A. Kellett, the contractor, at a cost of £20,217.

All the West Worthing sewage has passed, since July 23rd, into this new sewer and then on to the eastern outfall. The West Worthing outfall has now ceased to exist, the long length of pipe has been cut off, and the short length now remaining only carries off storm or surface water.

This work was begun in January and completed in the course of the autumn.

2. Some new sewage tanks at the outfall and gas engines to pump up the sewage into the tanks so as to prevent any tide locking and backing up of sewage.

Mr. Mansergh thus describes the process :—

“The scheme for dealing with the sewage at the outfall is briefly this. Steam pumping plant will be erected near the high end of the present 4ft. barrel sewer to lift the sewage and rain out of the sewer into open tanks capable of holding 1,000,000 gallons. A head wall will be built in the present sewer at the pump well to cut off the sewers from the outfall. A new 27-inch outfall sewer from the tanks will be laid out to sea, so that its mouth will always be below water. As the tides at Worthing flow eastwards four hours and westwards eight hours, the sewage will all be discharged in the four hours. The dry weather working will be as follows :—The pumps will lift the sewage as it comes day and night into the tanks, so that, in fact, the sewers will act as if there was a free outlet at all times, and backing up will be done away with. During the eight hours westward flow the sewage will be stored in the tanks, and will be let out during the four hours’ eastward flow, together with the sewage pumped during the four hours, and the tanks will all be empty when the outlet has to be closed.

“During heavy and continuous rain, the first washings of the rain and sewage will be pumped into the tanks, and when they are full the diluted liquid from the sewers will be pumped direct into the sea, whichever way the tide is flowing. No practical objection can be taken to this, and no nuisance will arise from it.

“Although it is not proposed to subject the sewage to chemical treatment before passing it into the sea at present, the tanks will be constructed so as to allow of such treatment being resorted to at any time.”

The tanks are nearly complete and the works will be finished early next summer.

The 27-inch outfall sewer has been laid down in the works and out to sea.

This contract has also been carried out by Mr. A. Kellett, in the same admirable manner as in the construction of the main sewer.

The estimate for this contract amounts to £14,571. In addition, the gas engines will cost £2,020, and will be provided by Messrs. Pratchitts Brothers.

Twenty acres of land have been purchased for the purposes of the sewage outfall works at a cost of £1,950.



3. The third portion of the system consists of new branch services and manholes in various parts of the town at an estimated cost of £3,550. This work will be carried out when the other portions of the system are in working order, and will be commenced next year.

Arrangements are also in progress to purchase the West Worthing Water Works (including the land, reservoir, and works at Durrington), Baths and premises, belonging to the West Worthing Water Works and Baths Company, with the rights, powers, and privileges of the Company.

#### LOAN AND CAPITAL EXPENDITURE.

The following list gives an approximate idea of the probable increase in the capital account during the past year and the coming year :—

	£
Special Loan for the service of 1893 . . .	8,270
Loan for Sewerage Works, Outfall, Land, &c. . .	36,000
„ Purchase of Land, Sinking Well, and other works in relation to the Water Supply	35,000
„ Purchase of West Worthing Water Works, Baths, Reservoir, &c. . . . .	26,500
Total . . . . .	<u>£105,770</u>

#### HERMITE TREATMENT OF SEWAGE.

There was much enthusiasm in the early part of the year over a scheme of treating sewage which many thought would bring the town to “the highest pinnacle of prosperity.” This idea, as is usual in such cases, was fostered by those who, having some knowledge of science, are more eager than others to accept a process which seems to promise a scientific result. The Hermite system had been tried at Havre and other French towns, but it does not seem to have been adopted by any municipal authority. A sum not to exceed £200 was voted for carrying out certain works in West Street and Montague Street. These works which are hereafter described were commenced in January and stopped on March 31st; they cost the Borough the sum of £168 16s.

The Hermite system is thus described by its inventor :—

“The Hermite System of Sanitation is based on the use of a very powerful disinfecting liquid obtained by electrolysing sea water or a solution of a proper mixture of sodium chloride and of magnesium chloride in a special machine called ‘*The Electrolyser*.’

“The magnesium chloride is alone decomposed and the sodium chloride serves as a conductor.

“The disinfecting principle is an oxygenated compound of chlorine.



“The disinfecting liquid is almost inodorous, leaves no settlement when it is used for washing, and is harmless.

“The sulphuretted hydrogen, the sulphhydrate of ammonia and all the microbes are destroyed by this liquid, which is a most powerful antiseptic—that is to say, it prevents putrefaction.

“Fecal matter is instantaneously destroyed when mixed with the electrolysed disinfecting liquid.

#### “HERMITE RATIONAL SANITATION OF TOWNS.

“This system consists in the establishment of a central factory for the making of the disinfecting liquid, which is carried through pipes into all the streets in the same way as ordinary water and gas are now supplied.

“Plugs established close to the kerbstone make it easy to wash the street gutters and flush the sewers with the disinfecting liquid.

“Pipes connected with the mains in the streets carry the disinfecting liquid into the houses for filling the tanks of the closets, &c.

“By the use of the disinfecting liquid in the closets the fecal matter is immediately destroyed with all the microbes it may contain, and is carried into the sewers in the form of a completely inodorous liquid which contributes to their disinfection by the compound of chlorine it still contains.

“It is evident that with this system of sanitation the spread of epidemic diseases is impossible.

“In seaports the only expense entailed by the application of the Hermite System is that of motive power ; in other towns the expense is very small.

“The Hermite System applied on board ship prevents the spread of disease.

“A considerable economy in the water supply is secured by the adoption of the Hermite System.”

At the request of the Sanitary Committee I constantly inspected the working process, and made many experiments. On March 14th, I sent in the following report, but it must be clearly understood that my remarks apply only to the process as carried out in Worthing, and not to the system as it might be under better conditions :—

“In accordance with your request, I have examined carefully the process which has lately been carried out in Worthing for the treatment of sewage by M. Hermite. After having made numerous experiments, and having obtained the assistance of Dr. Klein, F.R.S., and Dr. Dupré, F.R.S., for a bacteriological and chemical inquiry, I now submit to you the following report :—

“The whole of the plant has been erected under the direction of M. Hermite, and the method adopted is that carried out by the inventor

himself, so that this Report does not deal with the treatment of sewage at the outfall, nor with the mixed sewage of a town, but only with such sewage as the author of the process has seen fit to include.

“The Hermite solution is obtained by the partial electrolysis of sea water. Two galvanized iron tanks, each capable of holding 1,000 litres, or 220 gallons, are placed side by side, while between and above them an electrolyser is placed in a small metal box. There are four rows of vertical rods, covered in their lower half by a mesh of fine platinum wire, which dip into the sea water contained in the box; each row contains eleven such rods. Between these rows circular discs of zinc revolve when the machinery is in motion. The current, generated by a dynamo, which is driven by a portable steam engine, passes through the sea water between the electrodes of zinc and platinum, and in doing so it is said to decompose the magnesium chloride, and so to produce a disinfecting fluid.

“A gallon of ordinary sea water contains about 2,275 grains of combined chlorides in solution, of which magnesium chloride amounts to about 256 grains, the rest being nearly all sodium chloride. It is stated that the magnesium chloride is alone decomposed, and that the sodium chloride serves as a conductor. It takes about 2 to  $2\frac{1}{2}$  hours to convert 220 gallons (1,000 litres) into a disinfecting fluid of a strength equal to 0.75 grams of chlorine per litre, but M. Hermite says that a solution containing 0.30 grams of chlorine per litre is sufficient for his system. No account is given of the chemical nature of the substance produced by his process; it is said to be an oxygenated compound of chlorine, but no chemical formula is given. The solution has a smell of a weak solution of bleaching powder, and M. Hermite contends that his solution is of a similar nature, with this difference, that magnesia takes the place of lime in a bleaching fluid.

“Bleaching fluid is a solution of chlorinated lime; and his solution may then be called chlorinated magnesia. In each case hypochlorous acid seems to be produced in combinations with a base, and this acid is one of the compounds of chlorine with oxygen.

“When good commercial bleaching powder is treated with distilled water, a certain proportion is dissolved, and this fluid will give a strength equal in effect to 25 or 30 grams of chlorine per litre.

“Such a liquid gives off a strong smell of hypochlorous acid, and it has active bleaching power when treated with a diluted mineral acid.

“The strongest Hermite solution which I have examined contained 0.75 grams of chlorine per litre, or 0.52 grains per imperial gallon.

“On several occasions the strength was much less, amounting only to 0.22 grams of chlorine per litre, while in most of the experiments a strength of 0.44 grams to 0.51 grams was obtained, or a quantity in excess of that (0.30 grams) which it is claimed will suffice for disinfection.



“The strength of this standard may be better understood when I say that it is sixty times weaker than a saturated solution of good bleaching powder. The Hermite solution loses its strength when kept for a few days, even in closed vessels; two such samples lost nearly one-twentieth of their strength in one day.

“The solution contains no free chlorine, as has often been alleged, and it does not redden litmus paper; it will decolorize sulphate of indigo at once, and its strength is thus ascertained:—A solution containing a known quantity of arsenious acid is taken, and of this 5 c.c. are placed in a small glass beaker, into which two or three drops of indigo solution are added, so as to give the liquid an intense blue colour. On adding the Hermite solution, no change in colour takes place until the arsenious acid is changed into arsenic acid, and when this is completed, the blue colour disappears, and the liquid turns to a pale yellow-brown colour. The strength of the solution can thus be quickly ascertained; the weaker the solution, the more is required for decoloration.

“When treated with dilute hydrochloric acid, it gives off chlorine, and it will then bleach reddened litmus paper.

“There is no treatment of sewage by electricity as in Webster's method. Electricity is only used to decompose the sea water, and the altered sea water, so produced, is allowed to act chemically on sewage.

“The process has only been carried on upon a small scale in West Street. In Yard A the dynamo and the tanks are placed, and then the electrolysed fluid is pumped up into some store tanks, whence it is distributed for use as occasion may require.

“In Yard B two new water closets have been recently put up, and these are in direct connection with one of the syphons used in the process.

“In Yard C is a second syphon, also sunk in the ground, which receives the treated sewage from the similar syphon in Yard B, and also the ordinary sewage from fourteen cottages in West Street.

“The store tanks in Yard A are filled from the dynamo tanks; they are made of galvanized iron, and the water is distributed from them to the flushing tanks, but not to the sinks of each cottage.

“There is also a galvanized iron pipe (attached to the public water main) which leads to one of the store tanks, and thus the tanks can be filled with the town water as well as with the treated sea water, so that if there were not enough of the latter produced, the cottagers would not be without a supply for flushing purposes.

“It would indeed be well worth while to cease using the electrolysed sea water for a time, and to see what would be the effect of sending through the temporary system—1, sea water, 2, town water



—for a period of seven days each. No further arrangements would be required, and it would be interesting to note what difference would be met with when the three methods were compared.

“There is a difference in the arrangement in the two Yards B and C.

“In Yard B there are two new water closets erected, each provided with a short hopper basin and trap delivering into a short and partly open drain, which leads directly to the syphon. Each closet has a flushing tank which holds from two to three gallons, and which is supplied directly from the store tanks in Yard A. No storm water, nor subsoil water, nor any dirty house water can pass down this drain, and the syphon only receives such material, liquid or solid, which has passed through the closets. There is, however, a tap in this Yard, which is supplied from the store tanks, and whence water can flow at once into the temporary drain, and so into the syphon without going through the closets.

“The syphon in Yard B acts as an intercepting trap whereby anything smaller than the meshes of the cage can pass away into the sewer. It is clear that since any solid matters are, as a rule, broken up on or before their arrival at the syphon, they will pass on at once to the sewer with each successive flush, or whenever there is a current of water issuing from the tap. After a closet has been in use, the next flush will allow a certain amount of fresh fluid to enter at the top of the syphon, which will then cause a similar amount of the contents to be displaced and flow towards the sewer. If this process be repeated a few times, without any more excreta passing from the closets, the original fluid will all be driven forwards, and the syphon will then be full of water only. It matters not how often these closets are used, for if after such use sufficient clean water passes down the drain, the syphon will soon be filled with this clean water, and any samples taken from the small drum beyond the syphon bend will be samples of clear water only; and, if the electrolysed fluid be used, the samples will be those of electrolysed fluid only. The only solid matters left in the cage will be portions of papers which are too large to pass through the perforated holes of the cage. At certain times there must be some solid matter, and then the effluent is more or less tinted.

“The case is different with regard to the arrangements in Yard C. Here not only the closets but the dirty house water from fourteen cottages, as well as the treated sewage from Yard B, is constantly passing into the syphon. There is also a considerable amount of storm-water, which flows from the roofs and yards of the houses when there is wet weather. The amount of sewage will be very small at night time, but during working hours, and especially on washing days, a large amount of dirty water must constantly be running from the houses away to the sewer. One can tell roughly the nature of the fluid by its appearance before it enters the syphon; sometimes it is clear and almost free from house refuse, as when there is a rainfall, and the closets and house drains do not happen to be in use. At other times the fluid has the usual appearance of ordinary liquid house refuse. There is no separate tap here by which a quantity of water can be sent down from the store tanks; each closet is supplied by a flushing tank, which is fed from the store tanks.

“Nevertheless, the town water being laid on to the interior of each house, the water from the sinks and the water used for washing and cooking is free from the disinfecting fluid until it enters the drain.

“Any sample taken from the small drum in Yard C during working hours will be sure to contain some sewage of greater or less strength.

“Any samples taken from the small drum or the cylinder in Yard C will furnish a better proof of the efficacy of the Hermite process than samples taken in Yard B, where it is possible that nothing else than the disinfecting fluid may be drawn.

“When 20oz. of fresh excreta—*i.e.*, 4oz. solid and 16oz. liquid—were placed in a gallon of Hermite solution there was no bleaching, and no breaking up nor destruction of the solid matter; the only effect was to conceal the odour of the contents, and to delay decomposition. When to 20oz. of this treated mixture three times the amount, or 60oz., of Hermite solution were added, there was still no bleaching nor decomposition, but simply dilution of the original mixture, and the contents were partly deodorized. The Hermite solution was of the strength indicated by 0.61 grams of chlorine per litre. Dilution with sea water only produced results similar to those met with when the electrolysed fluid was used; but in the latter case the colour was not so intense.

“Both fluids prevented the decomposition of the excreta, and the Hermite solution produced in addition a small amount of bleaching effect.

“When the proportion of excreta was 1 in 32 of the Hermite solution, its presence was easily detected; but when a solution of chlorinated lime of similar strength was used better results were obtained, and there was complete discolouration.

“When strong chlorinated lime solution was tried, the contents were decomposed with evolution of froth; the fluid was bleached, and the liquid soon separated, on standing, into a clear portion and an abundant white flocculent deposit. The change with the Hermite solution was one of dilution chiefly, and not decomposition; the resulting fluid never became clear, and there was no white flocculent precipitate. With weaker solutions obtained from the process, the results were much the same as when sea water only was used.

“When dirty house water was taken from Yard C, after passing through the syphon, it was nearly as foul as before entering, but any solid matters were, of course, retained, when they were not small enough to pass through the holes in the cage; the perforated cage on the house side of the syphon acted simply as a coarse strainer.

“When to this treated effluent varying portions of Hermite solution were added, the chief effect again was one of dilution only, and there was but little trace of any bleaching action. In the propor-



tion of 1 of this sewage to 10 of the disinfecting fluid the resultant was still foul. Strong chlorinated solution at once produced decomposition, followed by clearing up of the fluid and abundant flocculent precipitate.

“I have tried several experiments with a view to see what effect the electrolysed fluid would have when various materials were exposed to its action for several days or weeks. To make a proper comparison three sets of bottles—each holding one pint—were filled with different liquids.

“In series A, ordinary sea water was used, the water being allowed to stand for a few hours, so as to allow of any sand or suspended matters to settle, and then the clear liquid was poured into each bottle.

“In series B, a saturated solution of chlorinated lime was taken, and after subsidence the clear fluid was used to fill each bottle.

“In series C, a similar set of bottles was filled with freshly prepared electrolysed liquid of known strength.

“It was necessary to make these three sets of experiments, so as to see what action was due to the sea water acting alone, and what was due to it after it had been treated. Since chlorinated lime water is analogous in composition to the electrolysed water, it was used to see what action it would have on the ordinary substances used in sanitary apparatus. Although very much stronger in its action than any Hermite solution, it served as a guide to point out what materials would be most affected, or what substances would resist attack.

“It is clear that if the stronger solution did not affect any articles which were placed in it, and which were exposed to its action for many weeks, it might fairly be assumed that they would still more easily resist the disinfecting fluid.

“If, on the other hand, any articles were injured or corroded by the chlorinated lime water, it would be equally fair to assume that the Hermite solution would act in a similar, but less severe manner.

“The amount of harm done would, in a given time, be of course greater when the strong solution were employed, but the injury done would be chiefly a matter of time. A substance exposed to the action of the electrolysed fluid for several months might be as much injured as one exposed to the lime solution for a few days.

“All the experiments were carried on under similar conditions, but all the solutions were in a state of rest. In this point, they differed from what would occur in actual practice where the fluid is constantly changing, and any rust or corroded particles could be carried away in the current, and escape notice.

“To allow for this loss, the bottles, at intervals of a week, were



partly emptied, any clear fluid was poured off, and they were refilled from the original solutions, or from solutions of a precisely similar nature freshly obtained.

“On mortar, neat cement, cement, clay, paper, india-rubber, and leather the three fluids had no effect; there was no bleaching of ink on printed paper. On metallic bodies, as iron, brass fittings, and copper, the effect was very marked, but lead, zinc, and tin, showed no appreciable difference.

“Since iron was the metal most liable to injury, a further trial was made. Three short pieces of one-inch black iron pipe and three short pieces of one-inch galvanized iron pipe were taken, and each piece was separately marked and carefully weighed.

“Four pieces (two of each kind) were then placed in chlorinated lime solution and electrolysed fluid, and the remaining two pieces (one of each kind) were set aside for comparison.

“The four pieces were kept in the solutions, in four separate bottles, for nineteen days, when they were taken out, dried, and re-weighed.

	CHLORINATED LIME SOLUTION.	HERMITE SOLUTION.
	MARKED IV.	MARKED V.
Black Iron lin. Pipe.	Original weight = 93·5374 grams. Final weight = 89·9084 grams. Loss = 3·6290 grams, or 56 grains.	Original weight = 97·7494 grams. Final weight = 97·2310 grams. Loss = ·5184 grams, or 8 grains.
	MARKED I.	MARKED II.
Galvanized Iron lin. Pipe.	Original weight = 87·2517 grams. Final weight = 81·3647 grams. Loss = 5·8870 grams, or 91 grains.	Original weight = 94·1207 grams. Final weight = 94·1855 grams. Gain = ·0648 gram, or 1 grain.

“The slight gain in the last case was due to a little white deposit which adhered strongly to the surface of the galvanized iron.

“I have not gone into the question of cost, as that is a matter for engineers; nor into the question of trying the process on sewage when it has passed into the sewers, nor upon sewage at the outfall, since the present experiments have only been applied to houses.

“Besides the annual cost of producing sufficient fluid, there would be a very great outlay in putting down a fresh set of mains, pipes, and cisterns, so as to convey it to each house.

“Moreover, each house, or each group of small houses, would require to be furnished with a syphon.

“In addition, I give the results which have been obtained from chemical and bacteriological analysis. The samples were taken on the day when M. Hermite explained his system on his recent visit to the town.”

#### CHEMICAL ANALYSIS.

Three samples, collected on February 26th, 1894, were sent to Dr. Dupré, F.R.S., of Westminster Hospital. They were from the following sources:—

I. M. Hermite's solution, taken in Yard A.

II. Sea water.

III. Sewage effluent in Yard C, after treatment with the electrolysed fluid.

Each sample was sent in a Winchester quart bottle, sealed, and stoppered. Dr. Dupré, in his report dated March 9th, 1894, states as follows:—

“I. M. HERMITE'S SOLUTION.—The water contains a small proportion of hypochlorite, probably magnesium or sodium, equal in effect to 0.72 grams of chlorine per litre, or of 50.4 grains per imperial gallon. The sample contained 1,315 grains of combined chlorine, equal to 2,167 grains of chloride of sodium per gallon.

“II. SEA WATER.—The sample of untreated sea water contains no hypochlorite or free chlorine, and 1,315 grains of combined chlorine per gallon, which is about the normal amount in pure sea water.

“The sewage is of dark brown colour and very turbid; it has no offensive sewage smell, but has a somewhat disagreeable beery smell. It still contains a small amount of hypochlorite. The amount of oxygen absorbed is extremely high, about four times as much as in the case of ordinary London sewage. The proportion of free ammonia is low for a sewage, but this may, however, be due to its being fresh. The amount of albumenoid ammonia yielded is extremely high. The sample of sewage is evidently of somewhat abnormal character, and does not seem very well suited for experimental purposes. Without a direct comparison between the treated and untreated sewage, it is impossible to say what improvement the treatment has effected.

“I may say, however, that this sample does not smell like ordinary sewage, and has not developed an offensive sewage smell after a week's keeping.

“Judging from the amount of combined chlorine present, compared with that of sea water, either a far smaller proportion of sea water has been used for flushing than water in the case of ordinary water closets, or else the sewage is otherwise mixed with much water.”

#### ANALYTICAL DETAILS.

Appearance	..	..	..	..	Turbid, filthy-looking.
Colour	..	..	..	..	Dark brown.
Smell	..	..	..	..	Not offensive, but somewhat beery smell
Deposit	..	..	..	..	Much foul.
Nitrous Acid	..	..	..	..	—
Phosphoric Acid	..	..	..	..	—
Oxygen absorbed from permanganate	..	..	..	..	20·3 grains per gallon.
Total dry residue	..	..	..	..	1264·0 „ „
Colour of residue	..	..	..	..	Dark brown.
Behaviour of residue on ignition	..	..	..	..	Much charring, evolves slight smell of urine and nitrogenous matter, also that of residue from beer.
Chlorine	..	..	..	..	538·0 grains per gallon.
Ammonia	..	..	..	..	·931 „ „
Albumenoid Ammonia	..	..	..	..	2·45 „ „
Hypochlorite equal to free chlorine	..	..	..	..	0·026 „ „

#### BACTERIOLOGICAL ANALYSIS.

The samples, collected on Feb. 26th, 1894, were sent to Dr. Klein, F.R.S., of St. Bartholomew's Hospital; they were from the following sources:—

A. Sewage effluent in Yard C, after treatment with the electrolysed fluid.

B. Sea water.

C. M. Hermite's solution taken in Yard A.

Each sample was sent in a Winchester quart bottle, sealed and stoppered.

Dr. Klein, in his report dated March 5th, 1894, states that:—

“Sample A was a very turbid fluid, with a large amount of floccular matter suspended in it; it had no offensive smell.

“Sample C was clear, and had a strong chlorine smell.

“Cultivations were at once made from the three samples:



“SAMPLE A.—(1) One plate was made with 1·0 c.c., and one plate with 0·1 c.c. of the fluid.

(2) 500 c.c. were driven through a Berkefeld filter.

This fluid took, owing to the very large amount of solid matter suspended in it, nearly an hour to pass through the filter; the same quantity of water would, as a rule, take about ten minutes.

“The particulate matter of the outside of the filter was then brushed off, suspended in 10 c.c. of sterile water, and with 1 c.c. of this each of the two gelatine tubes were charged and used for plate cultivation.

“Result: In both the plates of series 1 (*i.e.*, charged with 0·1 and 1·0 c.c. of original fluid A) numbers of colonies of bacteria developed: an estimation of their number showed that *fluid A contained per 1 c.c. between 800 and 1,000 living microbes*. From the various colonies of these plates the following species have been isolated: (*a*) bacillus coli, very numerous, (*b*) bacillus subtillis, (*c*) proteus vulgaris, (*d*) bacillus ulna, (*e*) bacillus mesentericus, (*f*) a non motile cylindrical bacillus, not liquefying, (*g*) various species of cocci. It follows from this that of the species that developed, several are such as do not form spores—*e.g.*, bacillus coli, proteus vulgaris, and the several species of cocci.

“In the plates of series 2 (that is those which each received the solid matter of 50 c.c. of the original fluid) the number of colonies that came up in 48 hours was so great, and the liquefaction so extensive, that they were practically useless for counting them or determining their character.

“Now this sample A, as far as I understand the description given on the label and in your letter, was sewage that had been subjected to the treatment after M. Hermite's process. Ordinary raw sewage of London, Manchester, and other towns that I have examined, contains between three millions and ten millions of bacteria per 1 c.c.; this ‘treated’ sewage effluent of Worthing, as stated above, contains only 800 to 1,000 microbes per 1 c.c.; it follows that there has been effected by the admixture of the Hermite solution a remarkable reduction in the number of living microbes, but it also follows that nothing like sterilization has been produced, since a considerable number of bacteria have survived the process; and be it also noted that amongst those that survived are several species that do not form spores, so that an assertion to the effect that the highly resisting spores are not killed, whereas non-sporing bacilli are killed by the process, is not borne out by these observations.

“A further experiment was made with this sample A on March 3, *i.e.*, after it had been kept four days. With  $\frac{1}{4}$  c.c. of the fluid A, a gelatine plate was made and the result watched. On the third and fourth day the number of colonies were counted, and as a result it was found that their number had increased meanwhile more than fourfold. Cultivations made after six days keeping showed that the number of microbes had meanwhile increased more than one hundredfold.

“Sample B. A plate was made with 1 c.c. of this sea water. The number of colonies that came up was too great to be counted; in fact, the gelatine was densely pervaded by colonies. A plate was made with 0.01 c.c. of the water, having been kept for two days. The number of colonies was estimated to be 1,000 per 1 c.c.

“Sample C was treated in the same manner as Sample A. Result: The fluid proved sterile, only two colonies were noticed in one plate made with the particular matter of 100 c.c. of the sample; the companion plate was free of any growth.

“Now, this result is extremely interesting, for it proves that sea water, containing a very large number of living microbes (Sample B), becomes practically sterilized by the Hermite process (Sample C).

“In order to ascertain further whether cultures of non-sporing bacilli, when mixed with Hermite's solution become sterilized thereby, I made the following experiments; but I should repeat here that I had no great hopes after the results obtained with Sample A, for we have seen that this sample was not anything like sterile, still containing 800 to 1,000 microbes per 1 c.c.

“Broth cultures of (1) *Bacillus coli*, (2) *Bacillus* of typhoid, and (3) *Cholera vibrios*, were mixed each with the same bulk of Hermite solution (C), and after thoroughly shaking were left standing for 20 minutes, and from them subcultures were made in normal nutritive media: in broth and in gelatine, each culture tube receiving one drop of the mixture. The result was this: *All subcultures in broth showed growth*, the broth cultures were uniformly turbid in 24 hours incubated at 37°C.; the gelatine tubes of the *Bacillus coli* and the *Cholera vibrios* incubated at 20°C., showed numerous colonies after 48 hours, those of the typhoid developed a small number of colonies after four days. This is quite in harmony with the experience repeatedly made, *viz.*: after allowing the disinfectant to act on the microbes, it is necessary to expose the subcultures made from the ‘treated’ material to 37°C., in order to avoid a hasty conclusion; repeatedly it has been found that while subcultures exposed to 20°C. failed to give a positive result in two days, those exposed to 37°C. yielded good growth. The growth which appeared in these different subcultures in broth was tested by further subcultures, and thereby it was ascertained that the same microbes that were used for the initial experiment were recovered in their perfectly normal characters. There is one point in connection with this series of experiments which is of importance, and this is—that by the addition of the same bulk of Hermite solution to the original normal cultures, the number of living microbes had decidedly become reduced, although a good many living examples were still left. This was determined in the following manner: from the original normal cultures 1, 2, and 3, a definite quantity was withdrawn mixed with the same bulk of sterile salt solution, and from this mixture plates in Agar were made and incubated at 37°C., in order to determine the number of microbes per 1 c.c. After the treatment of the original cultures with the same bulk of Hermite solution for 20 minutes, similar plates were made and the number of colonies coming up in these plates was compared with those



of the previous control plates. It was found that by the Hermite solution the number of living microbes was reduced something like over 100 times.

“A further experiment was made with these broth cultures of colon, typhoid, and cholera, to which an equal bulk of Hermite solution had been added, it was this: after keeping the mixture for 24 hours, inoculation was made into fresh sterile broth, each tube receiving about five drops of the ‘treated’ culture. The result was interesting; the bacillus coli and choleravibrio yielded normal growth, the typhoid did not yield any growth. So that even after 24 hours’ exposure of broth culture of bacillus coli and of choleravibrio to an equal bulk of Hermite’s solution, each five drops of the coli-fluid and the cholera-fluid still contained living microbes, while the typhoid fluid appeared sterile.

“Now, it is maintained by the ‘Hermite system,’ as explained in the printed leaflet which you kindly sent me, that ‘fæcal matter is instantaneously destroyed (meaning, of course, sterilized) when mixed with the electrolysed disinfecting liquid.’ The above experiments show that this was not the case with the sewage operated upon at Worthing, nor was it the case when cultures of bacillus coli, bacillus of typhoid, or of choleravibrio, were subjected to the liquid. I do not know what is the proportion of Hermite solution that this ‘Hermite system’ recommends to be added to ‘fæcal matter’ in order to sterilise it, but it must be quite clear from the above experiments on the broth cultures that even an equal bulk of Hermite solution added to the cultures does not by any means sterilize them even after 20 minutes’ exposure, and some not even after 24 hours. Whether such an addition (*i.e.*, equal bulk) in regard to sewage is possible in practice, is a matter on which I do not wish to give an opinion, but anything equal, or *à fortiori* anything less, would for sterilisation purposes be vain. Of an ‘instantaneous’ action there is nothing to be noticed in the above experiments.’

Since there is no instantaneous decomposition of fæcal matter, and no sterilization of sewage, I am of opinion that the process, so far as the late trials have gone, has therefore failed to produce the results which are claimed for it by its inventor.

A report was also sent to the Mayor of Worthing by Dr. Armand Ruffer, of the British Institute of Preventive Medicine, who was good enough to offer voluntarily to make experiments gratuitously in conjunction with Sir Henry Roscoe, M.P. This report is unfavourable to the process, but the experiments and observations were nearly all made after the publication of my report, and they do not deal with the sewage from the syphon in Yard C which was the weakest part of the system.

The process was not adopted.

#### SYSTEMATIC INSPECTION.

The following is the report of Mr. C. T. Gardner, the Sanitary Inspector, for the year 1894.



I beg to submit my Fourth Annual Report showing the work carried out in this department during the year ending December 31st, 1894.

The undermentioned premises were visited with results as stated in each case.

**SLAUGHTER HOUSES.**—During the first part of the year there were seven of these within your Borough, viz.:—

One in the East, three in the Central, two in the North-east, and one in the North-west Wards.

It is satisfactory to report that in the Central Ward, the most populous Ward in the Borough, one of the three slaughter houses has been demolished, viz. : one in Cook's Row ; there is also another in the same street which has not been used for slaughtering purposes for the past two years.

The other five slaughter houses have been frequently visited and found generally clean. There are instances in which the Bye-laws are not strictly complied with, No. 13 being the most difficult to enforce.

In one case it was found necessary to take legal proceedings for non-compliance with this Bye-law ; the owner was fined 10s. with costs.

In my Third Annual Report I drew your Committee's attention to the need of a public abattoir to replace the existing slaughter houses, which, although much improved during 1893, and kept generally clean, are a source of great complaint.

**BAKEHOUSES.**—These were periodically visited, and with one exception were found generally clean and limewashed twice during the year as required.

The bakehouse found to be an exception and unfit for the proper carrying on of the trade, was inspected by a Sub-Committee and steps were taken to have the necessary works carried out to render the premises fit. The occupier ultimately complied with the order of your Committee.

**COMMON LODGING HOUSES.**—There are three registered within the Borough ; they have been frequently visited and found clean and well kept in each case. Stricter supervision was necessary owing to the influx of workmen into the Borough in connection with the sewerage and water works. I am glad to state this had good results.

**DAIRIES AND MILKSHOPS.**—The regulations in force within the Borough are enforced.

**COWSHEDS.**—These are five in number, and in two instances do not meet the full requirements of the Regulations.

**BUTCHERS' SHOPS.**—These were visited and found generally clean and well kept.

**FISH SHOPS.**—These were visited and found generally clean and well kept. The market on the foreshore was also occasionally visited.

**MEAT INSPECTION.**—The various shops, slaughter houses, and Railway Station have been frequently visited to ascertain whether any meat was exposed for sale, or in course of preparation for sale, as human food which was unfit for that purpose. In one instance a quantity of mutton, found exposed for sale, was in such an advanced stage of decomposition as to be unfit for food of man. After being submitted to the Medical Officer of Health, it was taken to a Justice of the Peace, and an order for its destruction obtained. The owner was fined 22s. 6d. with costs, 10s.

In one case my attention was called by the proprietor to two fore hocks of bacon, weighing  $17\frac{1}{2}$  pounds. These were, in my opinion, barely up to the standard for human food, though not bad enough to come under Section 117 of the Public Health Act, 1875. The proprietor handed them to me, and a certificate for their destruction was given him.

**FOOD INSPECTION.**—The various general, grocers, fruit, and green-grocers' shops, and corn stores were visited. In one case a quantity of potatoes were found which were so diseased as to be unfit for human food. About twelve bushels of these were destroyed in my presence and a certificate of their destruction was given.

No samples of canned foods were purchased.

**MARGARINE ACT.**—The provisions of this Act are observed where margarine is sold.

**SALE OF FOOD AND DRUGS ACT.**—No samples of food or drugs were purchased for analysis, no instructions having been given by your Committee. I would again point out that this Act is practically a dead letter in the Borough, as reference to the Analyst's report will show.

**COMPLAINTS.**—Only thirty-one complaints of nuisances were received and promptly investigated. Where requisite, a notice was served and the nuisance abated.

**INFECTIOUS DISEASE.**—There were only thirty-five cases of infectious disease reported during the year, these were inquired into and where necessary, disinfectants were supplied free of charge.

A case of infectious disease (small pox) which occurred at one of the common lodging-houses, necessitated the erection of the hospital tents for the isolation of the patient.

Later on, another case of the same nature occurred at the same house, and this patient was also promptly removed to the tents. Much



extra labour was thrown on this department, owing to the difficulty of obtaining outside assistance. I am pleased to state that the means adopted were effectual in stamping out the disease.

**DISINFECTIONS.**—It was found necessary to disinfect only seventeen premises after disease of an infectious character. Each was thoroughly cleansed after disinfection, with good results, as the disease did not spread in any of the cases.

**PUBLIC ELEMENTARY SCHOOLS.**—These are ten in number and have been visited and found, so far as their sanitary fittings are concerned, to be in good order and efficient action.

**FACTORIES.**—The sanitary fittings and drains of four Factories have been put in good condition. No list of out-workers has been obtained owing to pressure of work in other directions.

**HOUSES UNFIT FOR HUMAN HABITATION.**—There were twenty-two houses reported to be unfit for human habitation; in no case was there an "Owner's Closing Order" obtained; one case only going before the Bench, the summons for which was withdrawn on the owner paying the costs, executing the necessary works and rendering the house fit for human habitation. The following table shows the situation of these premises :

Street.		Ward.		No. of Houses
Chapel Street	..	Central	..	1
Field Row	..	Central	..	3
Montague Street	..	Central	..	1
Marine Place	..	Central	..	2
Clifton Road	..	North-West	..	15
Total ..				22

Of this total of twenty-two houses, four have been rendered fit for human habitation, one was demolished, and proceedings are pending in the other seventeen cases.

**HOUSES DEMOLISHED.**—One house which was condemned as unfit for human habitation has been demolished, this house was situated at the back of the east side of West Street and just off the south side of Montague Street, in the Central Ward.

During the past year your Committee were recommended to proceed with the demolition of the houses condemned in Cook's Row and King's Row, closing orders for which were obtained in 1892. Proceedings have been taken in the cases in Cook's Row and shortly the demolition of the houses will be completed.

**HOUSE TO HOUSE SURVEY.**—The instructions of your Committee given in October, 1893, for a house to house survey are being complied with, and the summary will show the amount of work carried out in this direction during the past year, 1894.



I may mention that considerable difficulties have to be overcome in this important work, and it is often found necessary to provide new sewers with good gradients before the several premises can be effectually re-drained and the necessary remodelling of the sanitary arrangements effected.

The Teville Stream and River Ditch have been examined and reported on. It was found that the work of cleansing would be greatly facilitated if manholes were inserted in those parts of the Teville Stream running beneath public roads and belonging to the Corporation and your Committee adopted the recommendation. This work is being carried out, and a report will be submitted to you shortly setting forth where riparian owners have failed to comply with the notices served on them to cleanse the stream.

In addition to the reports made to the Committee, entries are being made in the special books kept at the office recording the condition on examination of each house and premises and a plan of the drainage made for future reference. This part of the work occupies a considerable amount of time, and is generally done during inclement weather, so that advantage may be taken of the fine weather for visiting premises while works are being carried out, and in obtaining information of other premises requiring alteration or amendment.

During the first quarter of the year assistance was rendered to the Medical Officer of Health in the course of his experiments on the Hermite process of sewage disposal.

**WATER INSPECTION.**—Special attention has been paid to the water supply of the Borough during the year.

Three samples from the temporary water supply of the Borough and one from the West Worthing Water Company's mains were conveyed to Dr. Klein, F.R.S., for Bacteriological Analysis, viz.:—

Sample A, from Broadwater Water Works.

„ B, from town reservoir of same water.

„ C, from centre of town (Ellesmere, Gratwicke Road).

„ D, from mains of West Worthing Water Company.

All four samples had been collected in the morning of same day, viz.: on January 29th, and the report was favourable.

Three samples from private wells supplying four houses in the East Ward were taken and delivered to the Medical Officer of Health, whose report was unfavourable to the water being used for domestic purposes.

In one case the well was closed and the house supplied from the Town main. The other three houses were closed for a time until the water was laid on from the main.

Six houses in the West Ward that were supplied from shallow wells found to be dangerously polluted were supplied from West Worthing Water Company's mains and the wells abolished.

The water services of 214 empty houses in the first quarter of the year were cleansed and flushed.

The hydrants in the West Ward have been frequently examined to ascertain their condition, and many visits were paid late at night and during the early morning to ascertain if constant pressure was kept up by the Company.

It will be seen on reference to the Summary that active measures were taken to prevent waste of water and to prevent pollution of the same, as in most cases where there was a direct supply to a w.c., the apparatus known as a stool or cottage valve, being of inferior construction, allows much waste of water, and danger to health may be caused by pollution with excreta and foul gases.

I must again draw the Committee's attention to the urgent need of fresh regulations for water supply and the adoption of some method of registration of fittings. It is my constant endeavour to get a good class of fitting fixed where old fittings are being replaced by more modern apparatus; but, owing to the absence of regulations and a fixed standard of fitting, inferior articles are often used. The consequence will, I am certain, be a great loss to the Authority, as inferior fittings are soon the cause of great waste of water, and a greater amount of supervision by competent Inspectors will have to be paid for in the near future.

Assistance was rendered during the first half of the year to the Borough Surveyor's department in checking the waste of water.

One case of wilful waste of water was taken before the Bench and a conviction obtained. The owner was fined 5s., with costs 12s. 6d.

#### SUMMARY.

Notices served.—119 notices were served under the Water Works Clauses Act for repairs to water fittings.

267 notices were served for the abatement of nuisances, remedying of sanitary defects, and separation of drinking water from water closets that were supplied direct.

473 letters were written in conjunction with these matters.

W.C.'S SUPPLIED DIRECT FROM WATER MAINS.—Five hundred and thirty-four w.c.'s that were found supplied in this manner were disconnected and supplied by means of syphon flushing cisterns.



W.C.'s FOUL AND DEFECTIVE.—Four hundred and thirty w.c.'s were replaced by new pans and traps, or cleansed.

DRAINS UNVENTILATED.—One hundred and twenty-one drains were ventilated by shafts four inches in diameter, carried to a safe distance above all windows.

HOUSES REDRAINED.—Two hundred and sixty-seven houses were redrained with water-tight drains and easy means of access provided by inspection chambers; of these it was found necessary to make forty-nine re-connections to the public sewers; where found necessary, intercepting chambers were provided with fresh air inlets.

DRAINS STOPPED.—Eleven drains were found to be choked; these were opened up and examined, the defects were remedied, and the drains put in good order.

WASTE PIPES OF BATHS, SINKS, AND LAVATORIES CONNECTED WITH SEWERS.—Ninety-three were disconnected and made to discharge outside houses on to channels leading to trapped stoneware gullies.

YARDS UNPAVED AND UNDRAINED.—Forty-three yards, where a nuisance of this kind existed, were abated by efficient paving and surface draining.

RAIN-WATER PIPES CONNECTED WITH DRAINS.—In one hundred and thirty-three instances where this occurred the pipes were cut off and made to discharge on to channels leading to trapped stoneware gullies.

ABSENCE OF DUST BINS.—One hundred and seventy-eight new galvanized iron dust bins were provided.

CESSPOOLS.—Eight premises found to be draining into defective cesspools were connected to the public sewer and the cesspools were emptied, cleansed, and filled up.

UNWHOLESOME HOUSES.—On the certificate of the Medical Officer of Health two houses were ordered to be cleansed and whitewashed. The notices were complied with in each case.

OVERCROWDING.—Three cases were abated.

OFFENSIVE ACCUMULATIONS.—Eight were ordered to be removed, and the notice was complied with in each case.

OFFENSIVE POOLS.—One case was dealt with and the pool abolished.

ANIMALS KEPT SO AS TO BE A NUISANCE.—In one instance where a large number of fowls were kept in a small backyard the nuisance was abated.



PROCEEDINGS BEFORE THE MAGISTRATES.—It was found necessary to take out four summonses for the various offences mentioned above and the results will be found as stated.

OFFENSIVE TRADES.—One offensive trade—that of a fat and bone dealer—established without the written consent of the Council was not allowed to continue, and the premises have since been closed.

In conclusion, it is my duty to state that a large amount of sanitary improvement works has been carried out by the owners of property voluntarily and by personal request, it having been my endeavour to get the wishes of your Committee complied with under the many difficult circumstances with as little friction as possible.

INQUESTS were held in seventeen cases ;—Male, 18 years, inflammation of the brain caused by an accidental fall ; male, 66 years, rupture of an aneurism of the aorta ; female, 3 days, inflammation of the brain caused by an accidental fall at birth ; female, 9 years, paralysis of heart following diphtheria. There were also inquests held on the bodies of thirteen men who were drowned when the s.s. *Zadne* foundered a few miles off the shore on November 14-15, 1894 ; nine were washed ashore on November 15th, two on November 19th, and two on November 24th.

There was only one death returned as “ not certified ” during the year out of a total of 222 deaths :—Female, 3 months, convulsions.

The climate of Worthing will be found in the General Report.

# WORTHING URBAN DISTRICT.

TABLE 1.—Showing the Deaths at various groups of ages in the ten years, 1885-94.

Year.	At all ages.	Under 1 Year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
1885 ... ..	178	29	20	7	8	55	59
1886 ... ..	228	54	43	10	5	63	53
1887 ... ..	231	33	18	13	16	74	77
1888 ... ..	220	30	28	10	6	76	70
1889 .. ...	179	28	15	7	10	63	56
1890 ... ..	218	46	18	4	18	63	69
1891 ... ..	341	55	44	16	9	114	103
1892 ... ..	248	30	14	7	24	86	87
1893 ... ..	426	54	32	44	73	141	82
1894 ... ..	222	39	22	8	9	71	73
Total...	2,491	398	254	126	178	806	729

TABLE 2.—Showing the Deaths in the nineteen years, 1876-94, from various causes.

Year.		Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.				Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza.	Total.
1876-80* ...	—	19	7	—	—	—	7	1	—	3	—	—	—	—	—	1	13	25	28	2	—	106
1881-85* ...	—	7	8	—	—	—	9	—	—	1	—	—	—	—	—	2	13	8	21	5	—	74
1886-90* ...	—	8	11	—	—	—	6	—	—	—	—	—	—	—	—	3	7	46	22	2	—	105
1891 † ...	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	2	40	5	4	—	9	62
1892† ...	—	1	3	—	—	—	3	—	—	—	—	—	—	—	—	3	1	—	3	—	15	29
1893† ...	—	1	3	—	—	—	172	—	—	—	—	—	—	—	—	2	1	7	18	1	2	207
1894† ...	—	—	2	—	—	—	—	—	—	—	—	—	—	1	—	—	1	6	—	—	3	13
Total...	—	37	34	—	—	—	197	1	—	6	—	—	—	—	—	13	76	97	96	10	29	596

\*Local Board.

†Municipal Borough.





(A)—Table of DEATHS during the Year 1894 in the Worthing Urban

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.  (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)	1	2	3
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and up-wards. (h)		Small Pox. .....	Scarlatina. .....	Diphtheria. .....
East Ward .....	49	6	3	1	2	21	16	Under 5 ..... 5 upwards.			
Central Ward .....	80	10	13	1	4	25	27	Under 5 ..... 5 upwards.			
North-east Ward.....	26	6	2	1	1	9	7	Under 5 ..... 5 upwards.			
North-west Ward .....	42	13	4	4	1	8	12	Under 5 ..... 5 upwards.			2
West Ward .....	16	2	—	—	1	3	10	Under 5 ..... 5 upwards.			
Infirmery .....	6	—	—	1	—	5	—	Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
TOTALS.....	219	37	22	8	9	71	72	Under 5 ..... 5 upwards.			2

The subjoined numbers have also to be taken into

Deaths occurring outside the District among persons belonging thereto.....	5	2	—	—	—	2	1	Under 5 ..... 5 upwards.			
Deaths occurring within the District among persons not belonging thereto...	34	1	1	1	3	19	9	Under 5 ..... 5 upwards.			



## (B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES

Officer of Health, during the year 1894, in the WORTHING Urban Sanitary District.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICK COMING TO THE KNOWLEDGE OF THE OFFICER OF HEALTH.					
	Census 1891.	Esti- mated mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.	
									Typhus.	Enteric or Typhoid.
(a)	(b)	(c)	(d)	(e)						
East Ward .....	2,767	2,920	59	Under 5 5 upwards.		2	1			1
Central Ward .....	6,269	6,300	93	Under 5 5 upwards.			1			
North-east Ward .....	2,936	3,050	69	Under 5 5 upwards.						3
North-west Ward.....	2,917	3,200	97	Under 5 5 upwards.	2		1			3
West Ward .....	1,692	2,150	21	Under 5 5 upwards.		1	1			1
Infirmary .....	25	30		Under 5 5 upwards.						
.....				Under 5 5 upwards.						
.....				Under 5 5 upwards.						
.....				Under 5 5 upwards.						
.....				Under 5 5 upwards.						
.....				Under 5 5 upwards.						
TOTALS .....	16,606	17,650	339	Under 5 5 upwards.	2	2	3			2
					2	4	9			8



OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

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**LITTLEHAMPTON**  
**URBAN SANITARY AUTHORITY.**

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## URBAN SANITARY DISTRICT OF LITTLEHAMPTON.

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	1861.	1871.	1881.	1891.
Area in Statute Acres ..	925	925	925	925
Number of Inhabited Houses..	497	624	743	851
„ Uninhabited „ ..	36	52	46	73
„ Building „ ..	3	4	17	15
Population .. ..	2,350	3,266	3,926	4,452
Males .. ..	1,112	1,569	1,865	1,962
Females .. ..	1,238	1,697	2,061	2,490

### BIRTHS AND BIRTH-RATE.

During the year 1894 the births of 98 children were registered ; of these 50 were male, and 48 were female.

Estimating the population in the middle of the year at 4,600, the birth-rate was equal to 21·3 per 1,000 persons living.

The variations in the birth-rate during the past ten years have been as follows :—

Year.	Births.	Birth-rate.	Year.	Births.	Birth-rate.
1885 ..	81 ..	19·7	1890 ..	89 ..	20·7
1886 ..	89 ..	21·4	1891 ..	93 ..	20·8
1887 ..	116 ..	27·7	1892 ..	81 ..	18·0
1888 ..	99 ..	23·5	1893 ..	105 ..	23·1
1889 ..	104 ..	24·4	1894 ..	98 ..	21·3

The mean annual number of births is 95, and the mean annual birth-rate is 23·0 per 1,000 persons living.

In England and Wales the birth-rate during the year was 29·6 per 1,000 persons living, a rate 2·0 per 1,000 below the mean rate in the ten years, 1884-93.



## GENERAL MORTALITY.

There were 66 deaths registered in this district during the year 1894, but to this number must be added the deaths of six persons in the East Preston Workhouse, which is outside the district, making the total of 72 deaths; of these 40 were amongst males, and 32 amongst females.

These 72 deaths include the deaths of three visitors.

Estimating the population in the middle of the year at 4,600, the death-rate was equal to 15·6 per 1,000 persons living.

In country places throughout England and Wales the rate of mortality in 1894 was equal to 15·6 per 1,000 of population.

The mean annual number of deaths during the last ten years was 59, and the mean annual death-rate is 13·5 per 1,000 persons living.

The variations in the death-rate during the past ten years have been as follows :—

Year.	Deaths.		Death-rate.	
	Including Visitors.	Excluding Visitors.	Including Visitors.	Excluding Visitors.
1885.....	47	46	11·4	11·2
1886.....	50	48	12·0	11·5
1887.....	59	51	14·1	12·2
1888.....	58	55	13·8	13·1
1889.....	65	59	15·3	13·9
1890.....	38	37	8·8	8·6
1891.....	84	79	18·8	17·7
1892.....	59	56	13·1	12·4
1893.....	57	56	12·5	12·3
1894.....	72	69	15·6	15·0

In each quarter of the past five years the deaths were thus registered :—

	1890.	1891.	1892.	1893.	1894.	Total.
First Quarter ..	11	22	17	20	21	91
Second Quarter ..	7	25	17	12	13	74
Third Quarter ..	9	15	10	16	13	63
Fourth Quarter ..	11	22	15	9	25	82
Total ..	38	84	59	57	72	310

## INFANT MORTALITY.

The *infant mortality* is here given as measured by the number of deaths under one year of age to the total number of births in the year :—

		Births.		Deaths under one year.		Ratio to 1,000 Births.
1885	..	81	..	4	..	49
1886	..	89	..	10	..	112
1887	..	116	..	8	..	69
1888	..	99	..	10	..	101
1889	..	104	..	6	..	58
1890	..	89	..	4	..	45
1891	..	93	..	10	..	107
1892	..	81	..	8	..	99
1893	..	105	..	5	..	48
1894	..	98	..	8	..	81
Mean	..	95		7.3		77

The eight *infantile* deaths included one from whooping cough, three from marasmus, and two from bronchitis; two infants were born prematurely.

In England and Wales the proportion of deaths under one year of age to registered births was 137 per 1,000 during the past year, the mean proportion in the preceding ten years having been 147.

### ZYMOTIC MORTALITY.

There was one death from zymotic disease in the case of those which are notifiable, and 5 in the other class where the number of cases cannot be obtained. The zymotic mortality was at the rate of 1.3 per 1,000.

				Cases.	Deaths.
Fever.	Small-pox	..	..	none	none
	Scarlatina	..	..	5	none
	Diphtheria	..	..	2	1
	Membranous Croup	..	..	1	none
	Typhus	..	..	none	none
	Enteric	..	..	3	none
	Continued	..	..	none	none
	Relapsing	..	..	none	none
	Puerperal	..	..	none	none
	Cholera	..	..	none	none
	Erysipelas	..	..	15	none
	Total	..	..	26	1

In the other class the deaths were as follows :—

	Deaths.
Measles .. .. .	4
Whooping Cough .. .. .	1
Diarrhoea and Dysentery .. .. .	none
Rheumatic Fever .. .. .	none
Total ..	5

There is no Isolation Hospital in this district.

The Infectious Disease (Notification) Act, 1889, came into operation on March 25th, 1890.

The Infectious Disease (Prevention) Act, 1890, came into operation on March 25th, 1891.

The Public Healths Acts Amendment Act, 1891, came into operation on March 25th, 1891.

The prevalence in each quarter of each notifiable disease is shown in the following table :—

	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total
Scarlatina .. ..	1	1	—	3	5
Diphtheria .. ..	—	1	1	—	2
Membranous Croup	—	—	—	1	1
Enteric Fever .. ..	1	1	—	1	3
Erysipelas .. ..	2	7	2	4	15
Total ..	4	10	3	9	26

### SCAVENGING AND CLEANSING.

The work is well done and the streets are kept very clean and well watered. The health of the town, as usual, was in a very satisfactory condition during the year.

### AGES OF PERSONS LIVING IN 1891.

The following table shows the difference of an urban from a rural population in the excess of females over males, and in the increased number of persons living in early adult life :—

	Male.	Female.	Total.
Under 5 years ..	202	243	445
5 to 10 ..	250	253	503
10 „ 15 ..	259	271	530
15 „ 20 ..	213	274	487
20 „ 25 ..	150	255	405
25 „ 35 ..	257	338	595
35 „ 45 ..	205	280	485
45 „ 55 ..	194	257	451
55 „ 65 ..	142	153	295
65 „ 75 ..	66	103	169
75 „ 85 ..	22	50	72
85 „ 95 ..	2	12	14
95 „ 100 ..	—	1	1
Total ..	1,962	2,490	4,452



## SYSTEMATIC INSPECTION.

The routine work done during the year by Mr. Howard, the Town Surveyor, is shown in the following summary :—

Number of houses inspected and visited	..	326
Nuisances of various kinds remedied	.. ..	41
Drains cleared and repaired	.. ..	9
Number of houses fumigated	.. ..	2
„ „ cleansed and limewashed	..	1

The number of Slaughter Houses, Bakehouses, and Cowsheds remains the same, and they are periodically inspected and found generally in a well kept state. The town water is laid on to all these premises.

There is now only one Common Lodging House; this is often inspected, and it is kept in a clean condition.

There were no cases of overcrowding abated during the year.

No Proceedings were taken before the Magistrates during the year.

INQUESTS were held in six cases :—Male, 2 months, want of proper and sufficient food; female, 4 days, congestion of the lungs; male, 53 years, suicide by cutting throat; male, 30 years, accidentally drowned in the sea whilst bathing; male, 40 years, accidental fall; male, 49 years, accidental fall.

There were three deaths returned as “not certified” during the year:—Female, 47 years, natural causes; male, 72 years, apoplexy; male, 65 years, cancer of the stomach.

## LITTLEHAMPTON URBAN SANITARY DISTRICT

TABLE 1.—Showing the Deaths at various groups of ages in the ten years, 1885-94.

Year.	At all ages.	Under 1 Year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
1885 ... ..	47	4	7	1	2	20	13
1886 ... ..	50	10	7	2	1	12	18
1887 ... ..	59	8	3	2	5	18	23
1888 ... ..	58	10	7	3	3	16	19
1889 .. ...	65	6	6	3	3	18	29
1890 ... ..	38	4	2	1	5	14	12
1891 ... ..	84	10	11	5	2	22	34
1892 ... ..	59	9	4	4	2	20	20
1893 ... ..	57	5	3	4	6	16	23
1894 ... ..	72	8	11	1	2	29	21
Total...	589	74	61	26	31	185	212

TABLE 2.—Showing the Deaths in the nineteen years, 1876-94, from various causes.

Year.	Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza	Total.
					Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.								
1876-80 ...	—	7	3	—	—	—	—	—	1	—	1	2	1	5	1	—	21
1881-85 ...	—	—	1	—	—	1	3	—	—	—	2	4	4	4	—	—	19
1886-90 ...	1	—	1	—	—	—	—	—	—	—	1	4	8	7	1	1	24
1891 ... ..	—	—	—	—	—	—	—	—	—	—	—	—	6	—	—	—	—
1892 ... ..	—	—	—	—	—	—	—	—	—	—	—	2	1	2	1	—	6
1893 ... ..	—	—	—	—	—	1	—	—	—	—	—	—	—	2	—	—	3
1894 ... ..	—	—	1	—	—	—	—	—	—	—	—	4	1	—	—	—	6
Total...	1	7	6	—	—	2	3	—	1	—	4	16	21	20	3	1	85

LITTLEHAMPTON URBAN SANITARY DISTRICT.

TABLE 3.—Showing the Deaths and Death-rate from all causes and from various causes in the ten years, 1885-94.

Deaths during the 10 years 1885-94, from												Annual Death-rate per 100,000 living, from			
YEAR.	Population in middle of period.	Deaths during the 10 years 1885-94, from						Annual Death-rate per 100,000 living, from							
		All Diseases.	Zymotic Diseases.	Phthisis.	Lung Disease.	Heart Disease.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.				
Including Visitors.	In 1885.....	47	7	4	4	7	1,146	170	97	97	170				
	In 1886.....	50	11	3	11	1	1,205	265	72	265	24				
	In 1887.....	59	3	5	7	6	1,411	71	119	167	143				
	In 1888.....	58	5	7	14	6	1,381	119	166	333	143				
	In 1889.....	65	4	7	9	8	1,529	94	165	212	188				
	In 1890.....	38	—	7	6	6	884	—	163	140	140				
	In 1891.....	84	6	6	14	10	1,881	134	134	313	224				
	In 1892.....	59	6	7	4	5	1,311	134	156	89	111				
	In 1893.....	57	3	2	7	10	1,253	66	44	154	220				
	In 1894.....	72	6	7	10	7	1,565	130	152	217	152				
Excluding Visitors.	In 1885.....	46	7	4	4	7	1,121	170	97	97	170				
	In 1886.....	48	11	3	11	1	1,156	265	72	265	24				
	In 1887.....	51	—	5	6	4	1,220	—	119	143	95				
	In 1888.....	55	4	7	14	6	1,309	95	166	333	143				
	In 1889.....	59	3	6	9	6	1,388	70	141	212	141				
	In 1890.....	37	—	7	6	6	869	—	163	140	140				
	In 1891.....	79	6	6	13	9	1,769	134	134	291	200				
	In 1892.....	56	5	6	4	5	1,244	111	134	89	111				
	In 1893.....	56	3	2	6	10	1,231	66	44	132	220				
	In 1894.....	69	6	6	10	6	1,500	130	130	217	130				



(A)—Table of DEATHS during the Year 1894 in the Littlehampton

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.  (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.										
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and up-wards. (h)		1 Small Pox. (i)	2 Scarlatina.	3 Diphtheria.
Littlehampton Urban District	66	8	10	1	1	28	18	Under 5 ..... 5 upwards.			1
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
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								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
TOTALS.....	66	8	10	1	1	28	18	Under 5 ..... 5 upwards.			
The subjoined numbers have also to be taken in											
Deaths occurring outside the District among persons belonging thereto.....	6	—	1	—	1	1	3	Under 5 ..... 5 upwards.			
Deaths occurring within the District among persons not belonging thereto...	3	—	—	—	—	3	—	Under 5 ..... 5 upwards.			



## (B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES

Officer of Health, during the year 1894, in the LITTLEHAMPTON

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICK- COMING TO THE KNOWLEDGE OF					
	Census 1891.	Esti- mated to mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.
(a)	(b)	(c)	(d)	(e)						
Littlehampton Urban District	4,452	4,600	98	Under 5		1	1	1		
				5 upwards.		4	1			3
				Under 5						
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OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical  
Urban District; classified according to DISEASES, AGES, and LOCALITIES.

[illegible]

ARUNDEL  
URBAN SANITARY AUTHORITY.

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## URBAN SANITARY DISTRICT OF ARUNDEL.

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	1861.	1871	1881.	1891.
Area in Statute Acres ..	1,969	1,969	1,969	1,969
Number of Inhabited Houses..	528	546	552	550
„ Uninhabited „ ..	23	14	5	20
„ Building „ ..	—	1	1	1
Population .. ..	2,498	2,956	2,748	2,644
Males .. ..	1,201	1,466	1,357	1,327
Females .. ..	1,297	1,490	1,391	1,317

### BIRTHS AND BIRTH-RATE.

During the year 1894 the births of 76 children were registered ; of these 35 were male, and 41 were female.

Estimating the population in the middle of the year at 2,640, the birth-rate was equal to 28·8 per 1,000 persons living.

The variations in the birth-rate during the past ten years have been as follows :—

Year.	Births.	Birth-rate.	Year	Births.	Birth-rate.
1885 ..	69 ..	25·1	1890 ..	79 ..	29·2
1886 ..	66 ..	23·1	1891 ..	59 ..	22·3
1887 ..	64 ..	23·2	1892 ..	69 ..	26·1
1888 ..	76 ..	28·1	1893 ..	78 ..	29·5
1889 ..	62 ..	23·0	1894 ..	76 ..	28·8

The mean annual number of births is 70, and the mean annual birth-rate is 25·8 per 1,000 persons living.



In England and Wales the birth-rate during the year was 29·6 per 1,000 persons living, a rate 2·0 per 1,000 below the mean rate in the ten years, 1884-93.

In each quarter of the past five years the births were thus registered :—

	1890.	1891.	1892.	1893.	1894.	Total.
First Quarter ..	27	8	16	24	22	97
Second Quarter ..	14	11	20	18	21	84
Third Quarter ..	21	22	15	18	18	94
Fourth Quarter ..	17	18	18	18	15	86
Total .. ..	79	59	69	78	76	361

### GENERAL MORTALITY.

There were 30 deaths registered in this district during the year 1894, but to this number must be added the deaths of two persons in the East Preston Workhouse, which is outside the district, so that the total number of deaths amounts to 32 ; of these 19 were male and 13 were females.

Estimating the population in the middle of the year at 2,640, the death-rate was equal to 12·1 per 1,000 persons living.

In country places throughout England and Wales the rate of mortality in 1894 was equal to 15·6 per 1,000 of population.

The variations in the death-rate during the past ten years have been as follows :—

Year.	Deaths.	Death-rate.	Year.	Deaths.	Death-rate.
1885 ...	37	13·4	1890 ...	70	25·9
1886 ...	42	15·2	1891 ...	51	19·3
1887 ...	77	28·0	1892 ...	45	17·0
1888 ...	56	20·7	1893 ...	46	17·4
1889 ...	47	17·4	1894 ...	32	12·1

Thus there have been during the above period 503 deaths, and a mean annual mortality of 18·6 per 1,000 of population. During the same period there were 698 births, so that the natural increase of population by excess of births over deaths was 195, there has, however, been a *decrease* of 104, so that a considerable number must have left the district in the past decade.

### INFANT MORTALITY.

The *infant mortality* is here given as measured by the number of deaths under one year of age to the total number of births in the year :—

Year.		Births.		Deaths under one year.		Ratio to 1,000 Births.
1885	..	69	..	3	..	43
1886	..	66	..	6	..	96
1887	..	64	..	8	..	125
1888	..	76	..	1	..	13
1889	..	62	..	9	..	145
1890	..	79	..	18	..	228
1891	..	59	..	11	..	186
1892	..	69	..	4	..	58
1893	..	78	..	9	..	115
1894	..	76	..	6	..	79
Mean	..	70		7.5		109

In England and Wales the proportion of deaths under one year of age to registered births was 137 per 1,000 during the past year, the mean proportion in the preceding ten years having been 147.

ZYMOTIC MORTALITY.

There was one death from zymotic disease in the case of those which are notifiable, and none in the other class where the number of cases cannot be obtained. The zymotic mortality was at the rate of 0.38 per 1,000.

					Cases.	Deaths.
	Small-pox	..	..	..	none	none
	Scarlatina	..	..	..	7	1
	Diphtheria	..	..	..	none	none
	Membranous Croup		..	..	none	none
Fever.	Typhus	..	..	..	none	none
	Enteric	..	..	..	4	none
	Continued	..	..	..	none	none
	Relapsing	..	..	..	none	none
	Puerperal	..	..	..	none	none
	Cholera	..	..	..	none	none
	Erysipelas	..	..	..	5	none
	Total	..	..	..	16	1

In the other class the deaths were as follows :—

					Deaths.
	Measles	..	..	..	none
	Whooping Cough	..	..	..	none
	Diarrhoea and Dysentery	..	..	..	none
	Rheumatic Fever	..	..	..	none
	Total	..	..	..	none

There is no Isolation Hospital in this district ; the cottage which was temporarily used for that purpose in 1890 was pulled down early in the year 1891.

The Infectious Disease (Notification) Act, 1889, came into operation on May 13th, 1891.

The Infectious Disease (Prevention) Act, 1890, came into operation on March 16th, 1891.

The Public Healths Acts Amendment Act, 1891, came into operation on March 16th, 1891.

The prevalence in each quarter of each notifiable disease is shown in the following table :—

	1st Qr.	2nd Qr.	3rd Qr	4th Qr.	Total
Scarlatina .. ..	7	—	—	—	7
Diphtheria .. ..	—	—	—	—	—
Enteric Fever .. ..	2	—	—	2	4
Erysipelas .. ..	2	—	2	1	5
Total ..	11	—	2	3	16

### WATER SUPPLY.

An excellent supply of good water has now been given to the town free of cost by the Duke of Norfolk. The amount is limited to 75,000 gallons a day. The houses on each side of the river can now be supplied, and the water mains are extended to Crossbush and Tortington.

### DRAINAGE AND SEWAGE.

The question of works of sewerage for the Borough was much discussed during the year, and Mr. Baldwin Latham sent in two reports dealing exhaustively with the subject. No works have at present been carried out, but it is probable that the scheme proposed in the second report will shortly be carried out.

#### I.

I have to report to you that I have very carefully considered the question as to the sewerage and disposal of the sewage of your district, and the various plans and schemes which have been proposed by Mr. W. L. Barrett for that purpose. The schemes proposed, I understand, were four in number, namely :—

(1) A plan in which there were five outfalls to discharge sewage in a crude state into the river.

(2) A plan in which there were two outfalls by which the crude sewage was discharged into the river.



(3) A plan in which the sewage was conveyed to one outfall, then pumped into elevated tanks located above the level of high water, then chemically treated and the effluent afterwards discharged into the river at all stages of the tide.

(4) A gravitation scheme, the particulars of which have not been supplied to me, but I understand the sewage was intended to be discharged in a crude state into the river, and this scheme was rejected by the Local Government Board.

It appears from what has transpired that no scheme for the disposal of the sewage of Arundel will be satisfactory unless provision is made for effecting its purification before it is discharged into the river, consequently only one of the foregoing schemes can be considered as satisfactory, and that scheme involves the annual cost of pumping the sewage, and it is the only scheme that has been laid before me and shown on the plans submitted to me.

I have had the advantage of a consultation with your Drainage Committee, and have learned their views on the subject.

In considering the question, and the probable cost of the disposal of the sewage, it should be observed that it does not appear that Arundel is likely to increase very largely or speedily in population, as between the census taken in 1881 and 1891 there appears to be an absolute diminution of population from 2,748 to 2,644. It is of course essential to know the population to be dealt with, and I have assumed for the purpose of this report a population of 2,700 persons. The volume of sewage must also be taken into consideration, and I have assumed in my calculations the volume of sewage at 5 cubic feet per head per day, equal to about 84,375 gallons per day, taking the population at 2,700 persons. I have also assumed that one half of this volume of sewage would flow off in six hours, and that this would represent the maximum rate at which pumping would take place in dry weather, and in order to verify this assumption I have ascertained from enquiries made upon the subject that the actual quantity of water supplied to the district (at present not fully supplied) for the seven weeks ending 23rd September was about 39,400 gallons per day, but that by agreement with His Grace the Duke of Norfolk, Arundel is entitled to a supply of 75,000 gallons per day, to which the volume of water used at the Castle (estimated at 30,000 gallons per day) must be added, showing that the volume of sewage may equal 105,000 gallons per day, 38.88 gallons per head per day from 2,700 persons. In addition to this there would be the foul waters admitted to the sewers from the Brewery and from other places, and there will be some amount for leakage of subsoil water into the sewers, so that the estimate of the dry weather flow of the sewage will not be found to be over estimated. The volume of sewage and the cost of pumping and treating it will also be effected by the volume of rainfall admitted to the sewers. I have very carefully considered this question, and have assumed that the rain from the roofs and yards of houses only will be admitted to the sewers, which will be equal to an area from which rain will flow of about 20 acres; all other rainfall, it is assumed, will be discharged into the natural channels, or existing sewers, to be retained for that purpose.

The average rainfall of Arundel is 28 inches, falling on an average of 157 days in the year. Of this amount about 80 per cent. would flow off, or 22·4 inches in depth per annum; but the volume of the flow off of rain depends not so much upon the actual quantity falling as upon the rate at which it falls, and on the average, whenever it rains, there may be expected in the sewers of Arundel a volume of not less than 60 cubic feet per minute at some period of a rainy day.

The outfall sewer proposed in Mr. Barrett's scheme is a 15-inch pipe, having an inclination of 1 in 500. The maximum flow of dry sewage during the six hours of maximum flow would not maintain a self-cleansing velocity through this outfall, as the velocity would be under 100 feet per minute; but in time of rain, on the average, the velocity would rise to nearly 140 feet per minute, so that in dry weather the sewer would require the aid of flushing. The level of this sewer is entirely below the level of high water, so that no storm overflow in connection with it could come into action at the time of high water until the sewage is headed up above the level of high water, which often rises to a level of over 9 feet above Ordnance Datum, so that to keep this outfall sewer free sufficient power must be provided to pump the whole volume of rain that enters the sewers.

There is no fault to be found with the proposed outfall sewer or its gradient: it is suitable and proper in a place like Arundel, having regard to the conditions and the limited amount of fall available. In the scheme submitted to me it is proposed that when the sewage gets to the point of outfall it shall be lifted into elevated tanks in order to be chemically treated. In Mr. Barrett's report it was shown that the lift was to be 12 feet. The tanks, however, having to be removed further from the town, the outfall sewer has been made longer and at a lower level, so that the lift for the sewerage has been increased to 15 feet. The level of the invert of the sewer at the proposed sewage works is 2·22 below Ordnance Datum, and the top water of the tanks is given at 12·20 feet above Datum. In order to lift the sewage and perform all the work required, it is intended to use a gas engine, a centrifugal pump being employed to pump the sewage, a machine that will certainly not give more than 60 per cent. efficiency; and owing to the large difference in gas engines between the indicated horse-power on which the consumption of gas is based and the actual pump horse-power, it will be found that, in order to lift the maximum dry weather sewage of six hours a day, the actual pump horse-power would be 1, while the indicated horse-power would not be less than 2·14. To pump the dry weather sewage for the 18 hours of minimum flow would require an indicated horse-power of not less than ·71; to pump the rainfall entering the sewers on an average for 157 days in the year with a centrifugal pump would require a pump horse-power of 3·76 or an indicated horse-power of 8·5. Power is also required for mixing the chemicals and for mixing the chemicals with the sewage; and if the sewage is to be continuously treated the gas machinery would have to work for the whole of the 24 hours, and certainly not less than 1·5 indicated horse-power would be required for this work. Power will also be required for dealing with the sludge, and in this case it is intended to consolidate the sludge in a filter press, the sewage being raised and pressed by atmospheric air, compressed for this purpose by the power of the solitary gas engine to be provided on the works. This mode of pressing



sludge is both expensive and unsanitary, as the whole of the air after being brought into contact with the foul sludge is liberated into the atmosphere in volumes many times larger than that of the volume of the sludge itself. The amount of sludge produced by 2,700 persons would be 5.122 tons per day of seven days per week; but allowing that this sludge is to be pressed in six days of eight hours, 5.93 tons would require to be dealt with every day. The pressure of air above a vacuum required to perform the work would be 132.3 lbs. The temperature of the air before compression taken on an average at 60 degrees would be heated by compression to 527.7 degrees, the increase of temperature by compression being 463.4 degrees; and as air is dilated  $\frac{1}{491.13}$ th part for every degree of temperature it is raised, the actual loss of power in using air in this form would be 77.7 per cent. and the useful effect only 22.3 per cent. It will, therefore, require a little over 1 pump horse-power working eight hours per day to perform the work of sludge pressing, which would be equivalent to 2.35 indicated horse-power.

With regard to the pumping of storm water, on the average the larger power would not require to be used more than 2.86 hours every day upon which rain fell. The following figures will therefore show the actual power that will require to be provided at the outfall:—

	INDICATED H.P.
To pump storm water ... ..	8.5
To pump maximum sewage six hours ... ..	2.14
For mixing chemicals and sewage ... ..	1.5
For sludge pressing ... ..	2.35
	<hr/>
	14.49

It will be observed that at times the actual power required will not exceed  $2\frac{1}{4}$  indicated horse-power, but in order to perform this work an engine of 14.49 indicated horse-power will require still to be kept going at a greatly increased cost per indicated horse-power to the figures hereafter given, which are based upon employing machinery of a character capable of developing for the time being nearly the power required. A gas engine such as would be used in these works would consume 20 cubic feet of gas per indicated horse-power per hour, and as gas cost 4s. per 1,000 cubic feet at Arundel, every indicated horse-power working for a full year 24 hours per day, the gas alone would cost £35.06 per annum. Making allowance only for the actual time worked the cost of gas will not be less than as follows:—

	H.P.	£	COST OF GAS PER ANNUM.
To pump maximum sewage 6 hours per day ... ..	2.14	×	8.76 = 18.75
To pump minimum sewage 18 hours per day ... ..	.7	×	26.4 = 18.48
To pump storm water 2.86 hours for 157 days ... ..	8.5	×	1.77 = 15.04
For mixing the sewage and chemicals continuously ...	1.5	×	35.06 = 52.59
Sludge pressing 8 hours per day 6 days per week ... ..	2.35	×	10.01 = 23.52
			<hr/>
The least cost of gas per annum ...			£128.38



In the scheme proposed by Mr. Barrett three sewage tanks are provided, each 50 feet long, 25 feet wide, and 4 feet deep, for the treatment of the sewage, each containing 31,250 gallons. Two of these tanks in practice would always be a work, and they are quite large enough, but I should say that a better shape of tank of more economical construction would be one longer and narrower, so that the three tanks together would occupy almost a square on the Plan.

In the scheme proposed by Mr. Barrett there are several points which require most careful consideration. In the first place the machinery is not in duplicate, and consequently any breakdown in the machinery would involve the town in difficulties, and certainly the discharge of the sewage by some outlet, not shown upon the plans, would have to be provided for that purpose, but at the time of high water no overflow would act until the sewers were completely water-logged. There is no arrangement either provided for storing the sewage, excepting in the sewers themselves; and sewers which are not continuously pumped, and in which the sewage is allowed to accumulate, would be in precisely the same position as a tide-locked sewer, with all its disadvantages and unsanitary conditions.

Having regard to the disadvantages and cost of a pumping scheme, it will be desirable for you to consider whether it would be better for you to adopt a scheme which would work by gravitation, or at any rate a scheme which would not involve the pumping of the whole of the sewage. In order to ascertain if such a scheme could be carried out in your district, I recommended that tidal observations of the rise and fall of the tide should be carried out, and this having been done I have plotted the records on the accompanying tidal diagrams, and which extends over a complete semilunation. I am happy to be able to report that it is quite possible to carry out a gravitation scheme in Arundel, which would be perfectly satisfactory in ordinary stages of the tidal flow in the river Arun, although in times of flood the river water might not fall as low as may be necessary to get a free discharge, but of course these times are very limited as compared with the whole period of the year, and possibly in times of flood-water, there will be no difficulty in allowing the sewage to rise up for a limited period, or if necessary to pump the purified effluent water into the river whenever the river is in flood. In order to carry out a gravitation scheme with chemical treatment of the sewage, the general arrangement of the works would not be different to that proposed in Mr. Barrett's scheme, and I should recommend that three sewage tanks be constructed, each about 22ft. by 66ft. by 3ft. deep, which would be ample for all the requirements of Arundel. Two of the tanks would be always working, and the third tank would be in readiness to receive half the contents of a full tank when it was about to be emptied. But, in addition to the general arrangement of an ordinary sewage works, a tank sufficiently capacious would require to be provided which would receive the overflow from the ordinary precipitating tanks, and in which the purified effluent would be stored during the period the outfall was tide-locked by reason of the water in the river Arun being higher than in the storage tank. The effluent need only be discharged on the falling tide, as I find on an average that on the one falling tide there is at Arundel a period of 4 hours 16 minutes below the level of 1.75 feet above Ordnance Datum,



and for 59 minutes on each falling tide on the average the tide level is below 1.25 feet below Ordnance Datum, which is the intended level of the floor of the tidal storage tank.

Upon the accompanying tidal diagram the horizontal red lines show the level of high water in the proposed tidal tank, and the level of the floor of such tank, and the level of Ordnance Datum, from which it will be seen that if an outfall sewer is constructed from Arundel of 15 inches diameter, having a fall of 1 in 500, or exactly the same size and fall as proposed by Mr. Barrett, such sewer may have an invert level at the sewage works of 2 feet above Ordnance Datum, and would be 3 feet deep at its head near the Bridge. The level of the sewage in the sewage precipitating tanks when working must be 1.8 feet above Ordnance Datum, and in the tidal storage tank the level is taken at 1.75 feet above Ordnance Datum; but these levels might be raised for a time, and in dry weather the tidal storage tank never would fill up to its full level. The floor level of the proposed tidal storage tank has been fixed at 1.25 below Ordnance Datum, and the ordinary depth of effluent water it would store would be 3 feet. At these levels the whole of the sewage and storm water can be got rid of by gravitation after chemical treatment without any pumping of any kind being requisite. The sewage would arrive at the works and pass through an ordinary salmon-ladder mixer on its way to the tanks, and the process of treatment would go on continuously.

On the accompanying small section I have shown exactly what would be the position of affairs. I am not, however, in a position to state whether or not a sewer laid at the depth which I have indicated at the bridge and in the lower portion of the district parallel to the river would be sufficiently deep for draining that portion of the town. If not, I still recommend this sewer to be made in this direction, and at the levels indicated; but in order to provide deeper drainage for the lower portion of the district I should recommend a sewer to be constructed at a greater depth, as shown by the dotted lines on the section, and that an automatic pumping station should be constructed at the bottom of Arun Street, or some other convenient point, from which the sewage would be lifted perpendicularly 5 feet high into the gravitation outfall sewer. The power to be used for this purpose would be the ordinary water pressure of the town mains, and after making every allowance for losses the quantity of water actually required would be comparatively small, as one volume of water would always raise six volumes of sewage, and there certainly would not be more than the sewage of 300 people to be raised, which, taken at 45 gallons per head per day, including rain, would be only 13,500 gallons per day, requiring 2,250 gallons of water to perform the work of pumping, and this water, after doing its work, would accumulate in a flush tank and be used for the purpose of flushing the outfall sewer, which will always be necessary in dry weather. This automatic hydraulic machinery is inexpensive in its character and not likely to get out of order, would be constructed in duplicate, and would come into work when there was any sewage to be pumped, and it will stop working when there is no sewage to be pumped. The machinery is noiseless, only occupies the space ordinarily occupied by a manhole, and is successfully at work in many places at the present time.

With regard to the cost of chemical treatment of the sewage, there seems to be some misunderstanding, certainly, as to this matter, as the volume to be treated will certainly not be less than 40 gallons per head per day, including the rainfall, in fact the figures of the water supply, including the Castle, give nearly this quantity; but for the purpose of calculation I have estimated the quantity at 40 gallons per head; the rainfall itself, according to the figures before referred to, is equal to 10 gallons per head per day when spread over every day of the year from a population of 2,700 persons. The cheapest chemical known for treating sewage is ferric sulphate, and the least amount that can be used would be  $7\frac{1}{2}$  grains per gallon, used in conjunction with about  $6\frac{1}{2}$  grains of lime per gallon. The volume to be treated on the average of the whole year, including rainfall, would be 108,000 gallons per day. Taking the cost of ferric sulphate at only £2 per ton delivered at Arundel, and lime at £1 per ton, then the following quantities will be required, and will cost for chemicals alone for the treatment of the sewage, as follows:—

			ANNUAL COST OF CHEMICALS. £
18.86 tons ferric sulphate, at £2 per ton	...	...	37.72
16.35 tons of lime, at £1 per ton	...	...	16.35
Annual cost of chemicals for sewage treatment...			<u>£54.07</u>

If Sulphate of alumina and lime was used the cost of chemicals would be increased fifty per cent. beyond the figures given. To the cost of chemicals for treatment the cost of about 17 tons of lime must be added, which would require to be used in the sludge pressing, taken at £1 per ton including carriage and carting. The actual cost of sludge pressing can therefore be put down as follows:—

							£
Cost of gas	...	...	...	...	...	...	23.52
17 tons lime for pressing	...	...	...	...	...	...	17.00
Filter cloths	...	...	...	...	...	...	10.00
One man, at 18s. a week	...	...	...	...	...	...	46.40
Cost of sludge pressing ...							<u>£96.96</u>

Of course it is very doubtful if anything would be realized for the pressed sludge, but 336 tons would be produced every year, and it realizes in some cases about one shilling per ton.

The following figures give, in my judgment, what would be the annual cost of chemical treatment combined with pumping at Arundel:—

				£
Cost of gas for pumping sewage	...	...	...	52.27
Cost of gas for chemical and sewage mixing	...	...	...	52.59
Cost of chemical treatment of sewage	...	...	...	54.07
Cost of sludge pressing and gas and one man	...	...	...	96.92
Cost of two additional men on works at 18s. per week	...	...	...	92.80
Cost of oil, packing, and sundries	...	...	...	20.00
Cost of repairs, tools, and renewals...	...	...	...	20.00

Total annual cost    £388.65



The annual cost of pumping, treating sewage, and sludge pressing, comes to 2·87 shillings per head per annum, and if one shilling per ton is procured for the sludge the annual cost would still be 2·75 shillings per head per annum. I may say with reference to the cost of treatment of the sewage and sludge, I do not know any place in which these two things are satisfactorily performed for less than 1s. 4d. per head per annum of the population—in fact this is the cost in the large town of Coventry, and of course in a large place the amount of labour to be employed in proportion to the population is not so great, and the expense would be less in such a district as compared with Arundel. In the case of Coventry the process has not been sufficiently satisfactory to produce an effluent fit to be turned into a fresh water stream in that neighbourhood.

Having regard to the first cost and the annual expense of maintaining chemical works, it would appear to be worth while for you to consider the question as to whether it would not be more economical and far better in a small place like Arundel to apply its sewage directly on to land in the neighbourhood. In this case it would be necessary to pump the sewage, but in order to pump a volume of sewage and storm water at the rate of 40 gallons per head per day to an elevation of not less than 110 feet, it would require a steam engine of 7·5 pump horse-power to raise this volume from a population of 2,700 persons in eight working hours, and to lift the dry weather sewage in eight hours a day about 5·8 horse-power would be required. For two steam engines of 7·5 pump horse-power the cost of pumping the sewage and rainfall would be as follows :—

	£	s.	d.
Fifty tons of coal at £1 per ton ... ..	50	0	0
Wages of driver and stoker, at 30s. per week ..	78	0	0
Oil, &c. ... ..	15	0	0
Repairs, &c. ... ..	15	0	0
	<hr/>		
	£158	0	0

In this scheme the sewage would be conveyed into a covered reservoir, in which the night sewage would be stored, constructed entirely below the level of the outfall sewer, and the engine-house would occupy the space above the reservoir, and the sewage would be pumped into straining tanks located on the high part of the land, and the liquid would flow by gravitation over the land, and the effluent, when there was any, would be passed back into the watercourses of the district and into the river. The effluent produced by this method would be vastly superior to that produced by a chemical process of treatment, while it may be taken for certain that after paying the cost of laying out the land the returns from the ground itself would pay the actual cost of distributing the sewage and all expenses except pumping, so that it appears to me that if you can acquire say about 19 acres of land on the site coloured green upon the plan, after paying the cost of laying out the works, the expenditure both on first cost and subsequently would be infinitely less than for the works requisite in carrying out a chemical process. The outfall sewer for an irrigation scheme, as proposed, would be somewhat deeper, as the pumping station should be located on the land upon which it is intended to treat

the sewage. Taking all things into consideration it appears that the cheapest method of disposing of the sewage of Arundel is to apply it continuously to land, and the second best method is to carry out a gravitation scheme for the drainage, treat the sewage chemically, store the purified effluent in a tidal tank and discharge it near low water in the falling tide. In this case I should advise a reconsideration of the nature of the power to be used on the works so as to reduce the cost of sludge pressing and chemical treatment.

## II.

I beg to hand you a Plan and Sections for the proposed works of sewerage and disposal of the sewage of Arundel which I have prepared. The estimates for the works include all the Sewers shown upon the accompanying 25 inch map. The sewers vary in size from 8 inches to 15 inches diameter and they will be sufficiently deep to drain the lowest floor of every house in the district. As far as possible the Sewers have been made in perfectly straight lines with manholes and lampholes at every point of lateral or vertical deviation. As far as possible I have constructed all the sewers in public roads, so as to avoid the question of paying compensation, and the main outfall sewer is also intended to be carried through a public road. The main outfall sewer is at such a level that it can be flushed at the time of high water of spring tides direct from the river. The sections show the depths and inclinations of the sewers and the whole of the district, with the exception of a very small area in the south-east corner, is drained by gravitation, this small portion being proposed to be drained by means of an automatic pump arrangement worked by water pressure from the town water mains. This automatic arrangement simply consists of a manhole below the street level containing two automatic sewage pumps, one of which will always do the maximum amount of work, and the second would always be in readiness in case of accident or in case the first machine becomes overpowered; the second engine will come to work of its own accord. For the sake of safety I propose to make a connection between the automatic pumping station and the river, which at any time could be opened if this machinery entirely broke down, but there is very little danger of such machinery breaking down as it is not more liable to accident or to wear and tear than any other class of sewage pumping machinery. It is a similar class of machinery to that which has now been successfully used for some time in pumping the whole of the low-level sewage and storm water of the low-level district of Margate. It will be noted from the estimates that this addition does not very materially increase the cost of the undertaking. At the head of every system of sewers an automatic flush tank is provided, so that every sewer in the district can be automatically flushed. This of course is essential in a district in which all the connections are not likely to be made at once. The mode of ventilation to be adopted is by means of elevated ornamental shafts of iron in a manner similar to that adopted and proposed to be used at Chichester and other places, there being no open gratings on the sewers at the street level. The estimates include a sufficient number of junctions for the connection of every house but does not include any house connections. Of course it would be extremely desirable that all the house connections should be put in at the time the public sewers are executed, and this would probably



entail a cost of from two to three pounds each, which would include the work in the street, the intercepting trap with lock, cover, and grating, so as to cut off all direct communication between the house and the sewer and terminating at the street boundary of the private premises.

With the exception of the small portion of the district to which I have before referred the whole of the sewage will be conveyed by direct gravitation to the point of outfall, and will be passed through the chemical works into a tidal storage tank, and the purified effluent will be passed into the river without any pumping whatever. I have also so arranged the works that no machinery of any kind is required for the purpose of sewage treatment, the only machinery necessary to be used upon the works being the machinery for dealing with and pressing the sludge and pumping water. It is intended to construct three precipitating tanks two of which will always be at work, while from the third the sludge would either be under removal, or would be empty to be put to work when required. Two of these tanks will hold 12 hours average dry weather sewage, taking the population at 2,700 and 30 gallons per head per day. The tidal storage tank will hold nearly one day's dry weather flow of sewage, that is, assuming that it is not headed up any higher than its normal level; but from the way in which these works are proposed to be constructed by excavation in the ground of course they will hold very much more, if it became necessary at any time for the sewage or effluent to be headed up. As it is the normal top water level in the tidal tank would be 1.75 feet above Ordnance Datum, the level of the floor of the tank being 1.25 feet below Ordnance Datum, the tank holding at these levels a depth of three feet of sewage. At these levels the tidal tank would be able to discharge over  $6\frac{1}{2}$  hours every tide; but in case of an exceptional storm, and the tidal tank filling as fast as the tide rose, the time for the discharge would be increased. From the tidal tank the sewage would be discharged into the river through a penstock chamber constructed on the river bank, from which an 18 inch iron outfall would convey it into the river. The arrangement of this penstock is entirely self-acting so that the whole of the sewage would be always got rid of by direct gravitation. The sewage itself, with the exception of a small portion automatically pumped in the Town, is entirely disposed of by gravitation and without the use of machinery and little manual labour. The sludge is intended to be conveyed from the tank to a well in the building from which it will be raised by a chain pump into a mixing well where it would be mixed with lime and subsequently pumped by means of direct acting pumps into a sludge press, and consolidated ready for conveyance away from the works, or to be used on the grounds adjoining the works.

The works are so arranged that the sludge, at any time, instead of being pressed, could be passed directly on to lands adjoining the works, so as to be disposed of by its application to the land either by digging in or otherwise. With reference to the power to be used on the works, it appears to me that the best, simplest, and cheapest arrangement will be to use a petroleum engine to perform what work is required. I have also very carefully considered the question of the cost of the works, and have prepared the accompanying detailed estimate in which the cost of every portion of the works is given.

It will be observed from the estimate that the total cost of actual



works is £6,302 2s. 1d. and if the cost of engineering, superintendence, contingences, &c., is added, the total cost would be £6,954.

In the low level, or pumped sewers, the estimate includes a provision for these sewers to be constructed with patent joints to ensure the water-tightness of the sewers, and it may also be necessary that a portion of the outfall sewer below the waterline of the district should be laid with patent jointed pipes, which, if they are necessary, would add a sum of £250 to the cost of the works, making the grand total cost of the works £6,552 2s. 1d.; but in these estimates I have not taken into consideration anything for the purchase of land at the outfall works. If the whole of the money, say £6,500, for the permanent works is borrowed at  $3\frac{1}{2}$  per cent. for repayment in thirty years and for the machinery, say £480, at the same rate of interest, in twelve years, the interest and principal will annually amount to £403 1s. 8d. for the first twelve years, and £353 8s. 3d. for the next eighteen years.

#### ARUNDEL SEWERAGE.

Estimate of cost of sewerage and sewage disposal works for the Corporation of the Borough of Arundel.

##### SUMMARY.

				£	s.	d.
Gravitation sewers	..	..	..	2,607	0	8
Pumped sewers	..	..	..	250	13	8
Manholes ..	..	..	..	567	0	0
Lampholes	..	..	..	9	0	0
Automatic flushing stations	..	..	..	215	0	0
Ventilating arrangements	..	..	..	180	0	0
Junctions and clay dams	..	..	..	154	10	0
Automatic pumping station	..	..	..	417	7	0
Sewage tanks	..	..	..	525	16	5
Tidal tank	..	..	..	211	11	0
Penstock and tidal chamber	..	..	..	68	0	0
Salmon ladder	..	..	..	26	15	0
Roads and fences	..	..	..	27	15	0
Buildings, &c.	..	..	..	567	13	4
Machinery	..	..	..	474	0	0
				£6,302	2	1
Engineer, 5 per cent.	..	..	..	315	0	0
Clerk of the Works and Inspectors	..	..	..	210	0	0
Contingencies	..	..	..	117	17	11
				£6,945	0	0

#### MARGARINE ACT.

Several grocers sell margarine, and in each case the regulations of the Act have been complied with.

## BAKEHOUSES.

These are six in number and they are very well kept. There is no bakehouse on a large scale, and the chief duty is to see that they are frequently cleansed and limewashed. In each case there is a good amount of light and air, and in no instance is there any drain within the building.

## SLAUGHTER HOUSES.

These are five in number, and they are very well kept as regards cleanliness and removal of refuse. One old one has been pulled down and a new one has been erected on another site in a more isolated position. The meat in all cases has seemed to be of very good quality.

## COMMON LODGING HOUSES.

These are three in number, but the number of inmates is very small. The houses are very well kept.

INQUESTS were held in three cases:—Male, 53 years, suicide by shooting ; male, 38 years, accidental fall from a cart ; male, 9 years, lockjaw following an injury to right knee.

There were no deaths returned as “not certified” during the year.

## ARUNDEL URBAN SANITARY DISTRICT

TABLE 1.—Showing the Deaths at various groups of ages in the ten years, 1885-94.

Year.	At all ages.	Under 1 Year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
1885 ... ..	37	3	4	1	5	11	13
1886 ... ..	42	6	3	3	4	16	10
1887 ... ..	77	8	7	3	3	35	21
1888 ... ..	56	1	13	6	4	16	16
1889 .. ...	47	9	—	1	4	16	17
1890 ... ..	70	18	8	3	6	20	15
1891 ... ..	51	11	3	2	1	12	22
1892 ... ..	45	4	3	2	3	13	20
1893 ... ..	46	9	3	2	2	14	16
1894 ... ..	32	6	1	3	—	9	13
Total...	503	75	45	26	32	162	163

TABLE 2.—Showing the Deaths in the twelve years, 1883-94, from various causes.

Year.	Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza	Total.
					Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.								
1883 ... ..	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1
1884 ... ..	—	—	1	—	—	—	—	—	—	—	—	—	1	2	—	—	4
1885 ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1
1886-90 ... ..	—	16	7	—	—	11	1	—	1	—	1	1	1	3	1	2	45
1891 ... ..	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	1	3
1892 ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	4
1893 ... ..	—	1	—	—	—	2	—	—	—	—	—	—	—	2	—	3	8
1894 ... ..	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2	3
Total...	—	18	8	—	—	13	1	—	1	—	1	2	3	9	1	12	69





(A)—Table of DEATHS during the Year 1894 in the Arundel

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.  (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.							(i)	1	2	3
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and up-wards. (h)		Small Pox. (j)	Scarlatina. (k)	Diphtheria. (l)
Arundel Urban District ...	30	6	1	3		8	12	Under 5 ..... 5 upwards.		1	
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
								Under 5 ..... 5 upwards.			
TOTALS.....	30	6	1	3		8	12	Under 5 ..... 5 upwards.		1	

The subjoined numbers have also to be taken in

Deaths occurring outside the District among persons belonging thereto.....	2					1	1	Under 5 ..... 5 upwards.			
Deaths occurring within the District among persons not belonging thereto...								Under 5 ..... 5 upwards.			

Urban District, classified according to Diseases, Ages, and Localities.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN  
UNDER FIVE YEARS OF AGE.

[illegible]

account in judging of the above records of mortality.

[illegible]



(B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF SICKNESS  
Reported to the Officer of Health, during the year 1894, in the ARUNDEL Urban Sanitary District.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICKNESS COMING TO THE KNOWLEDGE OF THE OFFICER OF HEALTH.					
	Census 1891.	Esti- mated to mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus. FEBRILE.	Enteric or Typhoid.
(a)	(b)	(c)	(d)	(e)						
Arundel Urban District ...	2,644	2,640	76	Under 5 ..... 5 upwards.	..... .....	1 6	..... .....	..... .....	..... .....	..... .....
				Under 5 ..... 5 upwards.	..... .....	..... .....	..... .....	..... .....	..... .....	..... .....
				Under 5 ..... 5 upwards.	..... .....	..... .....	..... .....	..... .....	..... .....	..... .....
				Under 5 ..... 5 upwards.	..... .....	..... .....	..... .....	..... .....	..... .....	..... .....
				Under 5 ..... 5 upwards.	..... .....	..... .....	..... .....	..... .....	..... .....	..... .....
				Under 5 ..... 5 upwards.	..... .....	..... .....	..... .....	..... .....	..... .....	..... .....
				Under 5 ..... 5 upwards.	..... .....	..... .....	..... .....	..... .....	..... .....	..... .....
				Under 5 ..... 5 upwards.	..... .....	..... .....	..... .....	..... .....	..... .....	..... .....
				Under 5 ..... 5 upwards.	..... .....	..... .....	..... .....	..... .....	..... .....	..... .....
				Under 5 ..... 5 upwards.	..... .....	..... .....	..... .....	..... .....	..... .....	..... .....
				Under 5 ..... 5 upwards.	..... .....	..... .....	..... .....	..... .....	..... .....	..... .....
TOTALS .....	2,644	2,640	76	Under 5 ..... 5 upwards.	..... .....	1 6	..... .....	..... .....	..... .....	..... .....

OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

[illegible]

HORSHAM  
URBAN SANITARY AUTHORITY.

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## URBAN SANITARY DISTRICT OF HORSHAM.

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						1881.	1891.
Area in Statute Acres	..	..	..	..		833	839
Number of Inhabited Houses	..	..	..	..		1,396	1,657
„ Uninhabited „	..	..	..	..		113	156
„ Building „	..	..	..	..		12	18
Population	..	..	..	..	..	6,874	8,087
Males	..	..	..	..	..	3,223	3,796
Females	..	..	..	..	..	3,651	4,291

### BIRTHS AND BIRTH-RATE.

During the year 1894 the births of 229 children were registered ; of these 118 were male, and 111 were female.

Estimating the population in the middle of the year at 8,460, the birth-rate was equal to an annual rate of 27·1 per 1,000 persons living.

The births and birth-rate in the district during the past ten years are here shown:—

Year.		Births.		Birth-rate.	Year		Births.		Birth-rate.
1885	..	227	..	30·9	1890	..	227	..	28·5
1886	..	235	..	31·4	1891	..	232	..	28·6
1887	..	201	..	26·4	1892	.	211	.	25·7
1888	..	220	..	28·5	1893	..	220	..	26·3
1889	..	236	..	30·1	1894	..	229	..	27·1

The mean annual number of births is 224, and the mean annual birth-rate is 28·3 per 1,000 persons living.

In England and Wales the birth-rate during the year was 29·6 per 1,000 persons living, a rate 2·0 per 1,000 below the mean rate in the ten years, 1884-93.

### GENERAL MORTALITY.

There were 100 deaths registered in this district during the year 1894, but to this number must be added the deaths of 12 persons in Horsham Workhouse, which is outside the urban area, leaving the corrected total at 112.

Estimating the population at 8,460 the death-rate was equal to an annual rate of 13·2 per 1,000.

In each quarter of the past three years' the deaths were as follows :—

	Male.				Female.				Total.		
	1892.	1893.	1894.		1892.	1893.	1894.		1892.	1893.	1894.
First Quarter ..	34	14	15	..	44	23	16	..	78	37	31
Second Quarter	17	27	14	..	16	16	13	..	33	43	27
Third Quarter	13	16	10	..	9	24	19	..	22	40	29
Fourth Quarter	14	25	13	..	16	16	12	..	30	41	25
	—	—	—		—	—	—		—	—	—
Total ..	78	82	52		85	79	60		163	161	112

The deaths and death-rate in the past ten years are here shown :—

Year.	Deaths.	Death-rate.	Year.	Deaths.	Death-rate.
1885 ...	108	14·7	1890 ...	131	16·4
1886 ...	184	24·7	1891 ...	163	20·1
1887 ...	110	14·5	1892 ...	163	19·8
1888 ...	106	13·7	1893 ...	161	19·3
1889 ...	106	13·5	1894 ...	112	13·2

In 1886 the high mortality was due to measles and lung diseases ; in 1891-93 influenza and lung diseases were prevalent.

The mean annual number of deaths is 134, and the mean annual death-rate is equal to 17·0 per 1,000 persons living. The death-rate last year is the lowest yet recorded.

### INFANT MORTALITY.

There were 14 deaths of infants under one year of age, and as there were 229 births, the rate of infant mortality was equal to 118 per 1,000, a figure which is high for a district of this kind, the rate for the whole of the combined district being 84.

In 1892 the ratio was 123 and in 1893 it was 136 per 1,000 registered births.

In England and Wales the proportion of deaths under one year of age to registered births was 137 per 1,000 during the past year, the mean proportion in the preceding ten years having been 147.

The fourteen *infantile* deaths included one from tubes mesenterica, one from meningitis, three from convulsions, four from lung diseases, two from debility and one from marasmus.

### POPULATION IN 1891.

In the preliminary census report issued in 1891 the number of persons living in this Urban Sanitary District was returned as 8,637.

The corrected returns, recently issued, give the number as 8,087, and the Rural Sanitary District is thereby increased by this difference of 550.

The following table gives the corrected number living at different groups of ages :—

The ages of those living in this district were thus recorded at the census of 1891.

		Male.		Female.		Total.
Under 5 years	..	489	..	522	..	1,011
5 to 10	..	509	..	467	..	976
10 „ 15	..	457	..	496	..	953
15 „ 20	..	370	..	399	..	769
20 „ 25	..	286	..	365	..	651
25 „ 35	..	521	..	569	..	1,090
35 „ 45	..	444	..	491	..	935
45 „ 55	..	332	..	395	..	727
55 „ 65	..	201	..	278	..	479
65 „ 75	..	133	..	207	..	340
75 „ 85	..	49	..	89	..	138
85 „ 95	..	5	..	11	..	16
95 „ 100	..	—	..	2	..	2
Total	..	3,796		4,291		8,087

The females, as usual in urban cases, are much in excess of the males.

### ZYMOTIC MORTALITY.

The deaths from zymotic diseases were three in the case of those which are notifiable, and none in the other class where the number of cases cannot be obtained.

					Deaths.
	Small-pox	..	..	..	none
	Scarlatina	..	..	..	none
	Diphtheria	..	..	..	2
	Membranous Croup		..	..	none
Fever.	{ Typhus	..	..	..	none
	{ Enteric	..	..	..	none
	{ Continued	..	..	..	none
	{ Relapsing	..	..	..	none
	{ Puerperal	..	..	..	1
	Cholera	..	..	..	none
	Erysipelas	..	..	..	none
	Total	..	..	..	3



In the other class the deaths were from :—

	Deaths.
Measles .. .. .	none
Whooping Cough .. .. .	none
Diarrhœa and Dysentery .. .. .	none
Rheumatic Fever .. .. .	none
Total ..	none

The Notification Act of 1889 is not yet in force in this district, but it will probably be put in force by the Urban District Council.

There were two deaths from diphtheria in young children during cold inclement weather, but there was no spread of the disease.

There are five Public Elementary Schools, which are in a fair condition.

There are four Common Lodging Houses, two of which are well kept. One is a very old building and seems to be quite unfit for use.

There are seven Slaughter Houses in the district, and these have been inspected during the year and kept fairly.

There are ten Cowsheds and Dairies, but they are nearly all on a small scale.

No Proceedings were taken before the Magistrates during the year.

One case of Overcrowding was abated.

## RAINFALL.

The following figures have been kindly sent to me by H. Padwick, Esq., J.P., from the observations taken by him at the Manor House, Horsham.

Month.	Amount in Inches.	No. of Rainy Days.
January .. .. .	4·83	24
February .. .. .	2·26	16
March .. .. .	1·89	14
April .. .. .	3·28	14
May .. .. .	2·05	13
June .. .. .	2·51	13
July .. .. .	6·92	22
August .. .. .	2·69	16
September .. .. .	2·60	10
October .. .. .	3·64	17
November .. .. .	6·97	18
December .. .. .	2·54	12

Year.				Amount in Inches.				No. of Rainy Days.
1894	..	..	..	42·18	..	..	..	189
1893	..	..	..	25·06	..	..	..	156
1892	..	..	..	27·53	..	..	..	161
1891	..	..	..	34·84	..	..	..	178
1890	..	..	..	25·87	..	..	..	143

INQUESTS were held in six cases:—Female, 7 months, convulsions and teething; female, 16 months, hydrocephalus; female, 46 years, accidentally burnt; female, 78 years, apoplexy; male, 44 years, accidentally run over; female, 85 years, accidental fall.

There were no deaths returned as “not certified” during the year.

HORSHAM URBAN SANITARY DISTRICT

TABLE 1.—Showing the Deaths at various groups of ages in the three years, 1892-94.

Year.	At all ages.	Under 1 Year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
1892 ... ..	163	26	20	6	9	42	60
1893 ... ..	161	30	21	10	5	47	48
1894 ... ..	112	14	7	3	3	44	41
Total...	436	70	48	19	17	133	149

TABLE 2.—Showing the Deaths in the three years, 1892-94, from various causes.

Year.	Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza	Total.
					Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.								
1892 ... ..	—	—	2	—	—	—	—	—	—	—	—	—	4	3	1	12	22
1893 ... ..	4	—	3	2	—	3	—	—	—	—	1	1	2	3	—	—	19
1894 ... ..	—	—	2	—	—	—	—	—	1	—	—	—	—	—	—	4	7
Total...	4	18	7	2	—	3	—	—	1	—	1	1	6	6	1	16	48



## HORSHAM URBAN SANITARY DISTRICT.

TABLE 3.—Showing the Deaths and Death-rate from all causes and from various causes in the three years, 1892-94.

PERIOD.	Deaths during the years 1892-94 from						Mean Annual Death-rate per 100,000 living from					
	Population in middle of period.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.	All Diseases.	Zymotic Disease.	Phthisis.	Lung Disease.	Heart Disease.	
		1892	163	10	11	36	17	1,980	121	134	437	207
			1893	161	19	15	25	13	1,928	227	180	300
1894	112	3	10	12	15	1,324	35	118	142	177		

(A)—Table of DEATHS during the Year 1894 in the Horsham

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.								1	2	3
	At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.		Small Pox.	Scarlatina.	Diphtheria.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)			
Horsham Urban District ...	96	14	7	3	1	34	37	Under 5 5 upwards.			1 1
Horsham Cottage Hospital ...	4				1	3		Under 5 5 upwards.			
								Under 5 5 upwards.			
								Under 5 5 upwards.			
								Under 5 5 upwards.			
								Under 5 5 upwards.			
								Under 5 5 upwards.			
								Under 5 5 upwards.			
								Under 5 5 upwards.			
								Under 5 5 upwards.			
								Under 5 5 upwards.			
TOTALS.....	100	14	7	3	2	37	37	Under 5 5 upwards.			1 1
The subjoined numbers have also to be taken in											
Deaths occurring outside the District among persons belonging thereto.....	12				1	7	4	Under 5 5 upwards.			
Deaths occurring within the District among persons not belonging thereto...								Under 5 5 upwards.			

Urban District, classified according to Diseases, Ages, and Localities.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN  
UNDER FIVE YEARS OF AGE.

[illegible]

ccount in judging of the above records of mortality.

[illegible]



## (B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES

Officer of Health, during the year 1894, in the HORSHAM Urban District.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICK- COMING TO THE KNOWLEDGE OF					
	Census 1891.	Esti- mated to mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.	
(a)	(b)	(c)	(d)	(e)					Typhus.	Enteric or Typhoid
Horsham Urban District ...	8,087	8,452	229	Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
Horsham Cottage Hospital ...		8		Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
				Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
				Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
				Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
				Under 5 ..... 5 upwards.	.....	.....	The	Infectious	is no	
				Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
				Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
				Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
				Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....
TOTALS .....	8,087	8,460	229	Under 5 ..... 5 upwards.	.....	.....	.....	.....	.....	.....

OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

[illegible]

COMBINED SANITARY DISTRICT.

GENERAL REPORT.

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# GENERAL REPORT

## ON THE

### HEALTH OF THE COMBINED SANITARY DISTRICT OF WEST SUSSEX.

#### POPULATION.

The corrected results of the Census, taken on April 6th, 1891, show that there were 106,476 persons in the combined district, against 88,038 on the same area in 1871, and 97,879 in 1881. Arundel, Midhurst, and Westbourne have joined the combination since 1871, but for comparative purposes, the population of all the districts in the present area are here given at each of the last three census periods.

District.	Census, 1871.		Census, 1881.		Census, 1891.
Steyning R. S. D.	14,060	..	16,325	..	19,110
Horsham R. S. D.	13,710	..	15,426	..	16,798
Petworth R. S. D.	10,147	..	9,594	..	9,431
Thakeham R. S. D.	8,335	..	8,285	..	8,049
East Preston R. S. D.	7,674 (a)	..	8,025 (a)	..	8,692
Midhurst R. S. D.	13,042	..	13,965	..	14,236
Westbourne R. S. D.	7,221	..	7,420	..	7,084
Worthing U. S. D. (c)	7,677 (b)	..	11,665 (b)	..	16,606 (a)
Littlehampton U. S. D.	3,266	..	3,926	..	4,452
Arundel U. S. D.	2,956	..	2,748	..	2,644
Total	88,038		97,379		107,102

(a) Including Heene, Rural.      (b) Excluding Heene, Rural.  
(c) Including West Worthing at each census periods.

The increase in 1881 over 1871 was 9,341, and there was a further increase in 1891 over 1881 of 9,723. In the whole period of twenty years the increase amounted to 19,064 persons.

Nearly the whole of this increase took place in urban districts, or in places of an urban character. In seven of such places there was an *increase* in the twenty years of 15,792 persons, and in two urban districts there was a *decrease* of 759 persons during the same period, leaving the total *urban increase* at 15,033. The increase from 1871 to 1881 was 6,228, and there was a further increase of 8,745 from 1881 to 1891. In the last decade the towns grew faster than in the previous decade.

The population in the rural districts was nearly stationary in the last decade.

The population in nine urban or semi-urban districts rose from 25,014 in 1871, to 31,302 in 1881, and to 40,047 in 1891.

The population in 124 rural parishes rose from 63,024 in 1871, to 66,077 in 1881, and to 67,055 in 1891 ; in the rural districts there was less growth in the last than in the previous decade.

The above figures do not include the urban district of Horsham with a population of 8,087 in 1891, which only joined the combination at the end of that year.

The following statistics are based on a population estimated in the middle of 1894 at 115,280.

In the ten years 1882-91 there were 13,179 more births than deaths, while the increase in the population was only 9,723 from April 1881 to April 1891, so that although the towns grew, there must have been a great exodus amongst the rural population. The birth-rate declined steadily, and so far as numbers are concerned, the diminished births more than cancelled any improvement in the death-rate.

For the purposes of this Report the population in the middle of the undermentioned periods is taken as the basis of the calculations.

Period..	1876-80.	1881-85.	1886-90.	1891.	1892.	1893.	1894.
7 Rural districts } 4 Urban districts }	69,760	80,450	82,820	83,436	83,750	84,200	81,930
	14,040	19,780	22,200	23,830	32,620	32,940	33,350
Total..	83,800	100,230	105,020	107,266	116,370	117,140	115,280

The rural population has been increased since 1880 by the addition of Westbourne with 7,420 persons and it has been diminished by the transference of Aldrington to Hove in 1893 ; the urban population has been increased by the addition of Arundel, since 1882, with 2,748 persons, and by the addition of Horsham, since 1891, with 8,087 persons.

## BIRTHS AND BIRTH-RATE.

During the year 1894 the births of 2,892 children were registered ; of these 1,468 were male, and 1,424 were female.

Table 1 shows the various changes in the birth-rate during the nineteen years 1876-94. There has been a gradual decline in the number of births, and this decline is general throughout the country.

TABLE 1.—Showing the Births and Birth-rates in the nineteen years, 1876-94.

PERIOD.	FIRST QUARTER.			SECOND QUARTER.			THIRD QUARTER.			FOURTH QUARTER.			TOTAL.	Annual birth-rate per 10,000 persons living.
	M.	F.	TL.	M.	F.	TL.	M.	F.	TL.	M.	F.	TL.		
1876-80 ...	1,610	1,671—	3,281	1,650	1,590—	3,240	1,612	1,509—	3,121	1,674	1,502—	3,176	6,546 6,272—12,818	30·61
1881-85 ...	1,991	1,858—	3,849	1,900	1,693—	3,593	1,873	1,741—	3,614	1,785	1,715—	3,500	7,549 7,007—14,556	29·64
1886-90 ...	1,776	1,729—	3,505	1,840	1,730—	3,570	1,733	1,651—	3,384	1,731	1,668—	3,399	7,080 6,778—13,858	26·70
1891 ...	333	360—	693	394	359—	753	374	339—	713	343	335—	678	1,444 1,393— 2,837	26·58
1892 ...	410	300—	710	375	359—	734	379	331—	710	355	326—	681	1,519 1,316— 2,835	24·36
1893 ...	423	380—	803	400	367—	767	377	385—	762	351	321—	672	1,551 1,453— 3,004	25·80
1894 ...	369	388—	757	343	334—	677	358	331—	689	398	371—	769	1,468 1,424— 2,892	25·08
Total...	6,912	6,686	13,598	6,902	6,432	13,334	6,706	6,287	12,993	6,637	6,238	12,875	27,157 25,643 52,800	28·24
Per cent...	...	...	25·75	...	...	25·25	...	...	24·62	...	...	24·38	... 100·000	



The births and birth-rate in each of the past four years are here shown :—

Year.	Population.	Births.			Total.	Rate per 1,000.
		Male.		Female.		
1891 ..	107,266 ..	1,444 ..		1,393 ..	2,837 ..	26·58
1892 ..	116,370 ..	1,519 ..		1,316 ..	2,835 ..	24·36
1893 ..	117,140 ..	1,551 ..		1,453 ..	3,004 ..	25·80
1894 ..	115,280 ..	1,468 ..		1,424 ..	2,892 ..	25·08

The birth-rate shows a gradual decline since 1879, when it was equal to 31·1 per 1,000 persons living.

The marriage-rate throughout the country reached its lowest point in 1886, when it was 14·2 per 1,000 ; it rose to 15·5 in 1890, and to 15·6 in 1891 ; it declined to 15·4 in 1892, and to 14·7 in 1893, but in 1894 there was a slight rise.

In each quarter of the year the births were thus distributed :—

	Male.		Female.		Total.		Per cent.
First Quarter. . . . .	369 ..		388 ..		757 ..		26·2
Second Quarter. . . . .	343 ..		334 ..		677 ..		23·4
Third Quarter. . . . .	358 ..		331 ..		689 ..		23·8
Fourth Quarter. . . . .	398 ..		371 ..		769 ..		26·6
Total. . . . .	1,468 ..		1,424 ..		2,892 ..		100·0

The mean annual birth-rate in this combined district is here contrasted with similar figures for England and Wales.

Period.	Birth-rate.	
	West Sussex.	England.
1876-80. . . . .	30·61 ..	35·4
1881-85. . . . .	29·63 ..	33·5
1886-90. . . . .	26·70 ..	31·4
1891 . . . . .	26·58 ..	31·4
1892 . . . . .	24·36 ..	30·5
1893 . . . . .	25·80 ..	30·8
1894 . . . . .	25·08 ..	29·6

The diminution in the birth-rate is not confined to large towns or urban districts ; the following table shows the changes in the rate in the seven *rural* areas which form part of this combined district.

#### SEVEN RURAL DISTRICTS.

Period.	Population.	Births.		Mean Annual Birth-rate.
1876-80. . . . .	69,760 ..	10,875 ..		31·19
1881-85. . . . .	80,450 ..	12,136 ..		30·15
1886-90. . . . .	82,820 ..	11,197 ..		27·02
1891 . . . . .	83,436 ..	2,293 ..		27·48
1892 . . . . .	83,750 ..	2,088 ..		24·93
1893 . . . . .	84,200 ..	2,228 ..		26·46
1894 . . . . .	81,930 ..	2,150 ..		26·24

The four remaining *urban* districts of the combination give a similar result ; in their case, the annual rates are lower owing to the age and sex distribution of the population, and there is also a great excess of unmarried females.

#### FOUR URBAN DISTRICTS.

Period.	Population.		Births.		Mean Annual Birth-rate.
1876-80 ..	14,040	..	1,943	..	27·68
1881-85 ..	19,780	..	2,420	..	24·46
1886-90 ..	22,200	..	2,610	..	24·00
1891 ..	23,830	..	544	..	22·83
1892 ..	32,620	..	747	..	22·90
1893 ..	32,940	..	776	..	23·56
1894 ..	33,350	..	742	..	22·25

In the nineteen years 1876-94 the births of 52,800 children were registered, and of these there were 27,157 male and 25,643 females ; in each year the boys born were in excess of the girls.

Births are most frequent in the spring and they decline as the year advances.

#### BIRTHS IN 1876-94.

	Male.	Female.	Total.	Per cent.
First Quarter ..	6,912	6,686	13,598	25·75
Second Quarter	6,902	6,432	13,334	25·25
Third Quarter ..	6,706	6,287	12,993	24·62
Fourth Quarter	6,637	6,238	12,875	24·38
Total ..	27,157	25,643	52,800	100·00

#### GENERAL MORTALITY.

During the year 1894, the deaths of 1,522 persons were registered, and of these 770 were male, and 752 were female.

Estimating the population in the middle of the year at 115,280 the death-rate was equal to 13·2 per 1,000 persons living.

District.	Population.		Deaths.		Death-rate
Steyning .....	17,050	..	201	..	11·8
Horsham .....	17,160	..	204	..	11·9
Petworth .....	9,400	..	116	..	12·3
Thakeham .....	8,000	..	136	..	17·0
East Preston ....	8,980	..	124	..	13·8
Midhurst .....	14,310	..	197	..	13·7
Westbourne.....	7,030	..	106	..	15·1

District.	Population.	Deaths.	Death-rate.
Worthing .....	17,650	{ 222 .. 191* ..	12·6 10·8*
Littlehampton....	4,600	{ 72 .. 69* ..	15·6 15·0*
Arundel .....	2,640	32 ..	12·1
Horsham .....	8,460	112 ..	13·2
Total....	115,280	1,522 ..	13·2
		1,488*	12·9*

\*Excluding visitors.

There were 1,517 deaths actually registered in the whole district, but to this number should be added the deaths of 34 persons occurring outside the district among persons belonging thereto; from this total of 1,551 there should be deducted the deaths of 64 persons occurring within the district among persons not belonging thereto, leaving the total number at 1,487. Of these 64 persons, 35 were visitors at Worthing and Littlehampton, while 29 were persons who died in Workhouses, and who came from places not included in the combination. The 35 deaths among visitors added to the above number of 1,487 make a total of 1,522 deaths. These figures include the deaths of the 13 men who were drowned when the s.s. *Zadne* foundered off Worthing.

The deaths and also the death-rates in each of the past four years are here shown:—

Year.	Population.	Deaths.		Total.	Rate per 1,000.
		Male.	Female.		
1891 ..	107,266 ..	951 ..	863 ..	1,814 ..	16·9
1892 ..	116,370 ..	990 ..	946 ..	1,936 ..	16·6
1893 ..	117,140 ..	961 ..	938 ..	1,899 ..	16·3
1894 ..	115,280 ..	770 ..	752 ..	1,522 ..	13·2

The death-rate in England and Wales in 1894 was equal to 16·6 per 1,000 persons living, the rate, however, being higher in large towns than in small places:—

	Death-rate in 1894.	Mean, 1884-93.
Town Districts .....	17·1 ..	20·2
Country Districts . . .	15·6 ..	17·5
England and Wales . .	16·6 ..	19·2

The death-rates in this district during the twenty years, 1875-94 are here contrasted with the rates in England and Wales; there is a general rise in recent years over the low rates prevailing in 1886-90.



Year.	West Sussex.		Town Districts.		Country Districts.		England.
1875 ..	17.0	..	24.2	..	20.7	..	22.7
1876-80	15.4	..	22.4	..	21.2	..	20.8
1881-85	14.6	..	20.4	..	17.5	..	19.4
1886-90	14.5	..	20.0	..	17.1	..	18.9
1891 ..	17.0	..	21.1	..	18.5	..	20.2
1892. .	16.6	..	19.5	..	18.1	..	19.0
1893. .	16.3	..	20.2	..	17.4	..	19.2
1894. .	13.2	..	17.1	..	15.6	..	16.6

In each quarter of the past year the deaths were thus distributed :—

	Male.	Female.	Total.	Per cent.
First Quarter . . . . .	209	241	450	29.6
Second Quarter . . . . .	210	155	365	24.0
Third Quarter. . . . .	137	183	320	21.0
Fourth Quarter . . . . .	214	173	387	25.4
Total . . . . .	770	752	1,522	100.0

Deaths are more frequent in the cold months than in the warm months of the year; hence the death-rate is highest in the first quarter, it declines through the second quarter, reaching its lowest point in the third quarter, and again rising as winter advances. This ordinary distribution of deaths was disturbed in 1893 by exceptional circumstances, and chiefly by the prevalence of enteric fever.

In each quarter of the previous ten years the deaths were thus recorded :—

Year.		1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.
1884	..	381	333	383	390	1,487
1885	..	448	360	345	369	1,522
1886	..	544	429	373	372	1,718
1887	..	420	389	338	388	1,535
1888	..	448	382	307	317	1,454
1889	..	374	305	337	347	1,363
1890	..	451	324	309	396	1,380
1891	..	540	492	343	439	1,814
1892	..	809	378	347	402	1,936
1893	..	493	464	566	376	1,899
Total	..	4,908	3,856	3,648	3,796	16,208
Per cent. . .		30.3	23.8	22.5	23.4	100.0

The deaths at different groups of years are here shown not only for the whole district but also for the urban and rural portions separately.

## COMBINED DISTRICT, 1894.

		Under 1 year	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 & over.	Total.
First Quarter ..		70	36	17	13	126	188	450
Second Quarter		55	32	13	22	117	126	365
Third Quarter ..		43	17	28	22	97	113	320
Fourth Quarter		74	35	21	14	105	138	387
Year.								
1894 .. ..		242	120	79	71	445	565	1,522
1893 .. ..		308	164	139	159	574	550	1,889
1892 .. ..		300	164	88	102	577	705	1,936
1891 .. ..		321	186	87	86	495	659	1,814
1890 .. ..		256	110	59	88	414	553	1,480

## FOUR URBAN DISTRICTS.

Year.		Under 1 year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 & over.	Total.
1890 .. ..		71	28	11	29	103	100	342
1891 .. ..		76	58	23	12	148	159	476
1892 .. ..		69	41	19	38	161	187	515
1893 .. ..		98	59	60	86	218	169	690
1894 .. ..		67	41	15	14	153	148	438

## SEVEN RURAL DISTRICTS.

Year.		Under 1 year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 & over.	Total.
1890 .. ..		185	82	48	59	318	453	1,138
1891 .. ..		245	128	64	54	347	500	1,338
1892 .. ..		231	123	69	64	416	518	1,421
1893 .. ..		210	110	79	73	356	381	1,209
1894 .. ..		175	79	64	57	292	417	1,084

It is necessary to separate the urban and rural rates as the distribution of the population, as to age and sex, is so different in the two areas.

In towns there is an excess of females over males, which slightly lowers the rate, and there is also a great excess of persons in adult and middle life which still further helps to lower the rate. The opposite conditions obtain in rural life, so that the death-rate is raised from 1 to 2 per 1,000 simply from the presence of these conditions and quite apart from sanitary circumstances.

The recorded death-rates for these two areas are here given :—

Year.	Urban Population.		Urban Death-rate.		Rural Population.		Rural Death-rate.
1890	..	23,250	..	14·7	..	83,170	.. 13·7
1891	..	22,830	..	20·0	..	83,436	.. 16·3
1892	..	32,620	..	15·8	..	83,750	.. 17·0
1893	..	32,940	..	20·9	..	84,200	.. 14·4
1894	..	33,350	..	13·1	..	81,930	.. 13·2

The table should be compared with a similar table for the urban and rural birth-rates given above.

The corrected death-rates have not yet been calculated.

The deaths, as a rule, are most frequent in the first quarter, and least frequent in the third quarter of the year ; in 1893, the result was exceptional. The year might also be divided into three parts according to temperature ; the following scheme gives the percentage of deaths at each period for the fourteen years 1881-94 :—

			Deaths.	Per cent.
Cold.				
December to March ..	..	..	8,385	38·3
Moderate.				
April, May, October, November ..		..	7,018	32·0
Hot.				
June to September ..	..	..	6,513	29·7
Total ..			<hr/> 21,916	<hr/> 100·0

Cold weather is most fatal while hot weather is the least fatal. Table 2 gives the deaths in each month of the years 1881-94, and from this table the above results are abstracted.

Table 3 is of interest, as it shows the number of deaths in the seven rural districts occurring at different periods of life. When these numbers are contrasted with the numbers living in each district at the same ages, it will be found that the death-rate is high under one year of age, while it rapidly decreases up to five years of age ; it is very low in childhood and early youth, rising gradually up to sixty-five years of age ; up to this period the rates are lower than those usually met with in urban districts, but after that age the death-rate is higher in rural districts. It will be seen that more than one-third of the deaths take place above sixty-five years of age. This is because in a healthy country district there is, from various causes, an accumulation of aged persons, and if the death-rates are low in early life, they must be higher in advanced life.

Similar figures for the four urban districts cannot be given, as so many alterations have been made in the area that no comparative statement extending over so many years can yet be made.



TABLE 2.—Showing the Deaths in each Month in the ten years 1881-90, and in 1891-94.

Month.	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	Total.	1891	1892	1893	1894
January ..	125	132	127	117	182	155	130	135	108	149	1,360	210	394	172	177
February ..	118	108	118	124	151	185	120	142	125	151	1,342	164	219	149	136
March ..	126	141	154	140	115	204	170	171	141	151	1,513	166	196	172	137
April ..	131	98	148	118	129	168	126	142	135	122	1,317	173	132	156	142
May ..	117	118	137	101	130	140	144	137	98	121	1,243	159	124	168	117
June ..	106	103	139	114	101	121	119	103	72	81	1,059	160	122	140	106
July ..	93	100	107	116	117	111	112	97	116	104	1,073	116	101	205	109
August ..	110	112	108	147	112	131	111	115	102	101	1,149	114	112	204	112
September ..	104	117	107	120	116	131	115	95	119	104	1,128	113	134	157	99
October ..	109	100	104	125	97	105	136	125	113	109	1,123	119	152	122	119
November ..	98	116	125	121	130	116	118	99	103	126	1,152	136	112	129	123
December ..	86	131	113	144	142	151	134	93	131	161	1,286	184	138	125	145
Year ..	1,323	1,376	1,487	1,487	1,522	1,718	1,535	1,454	1,363	1,480	14,745	1,814	1,936	1,899	1,522

TABLE 3.—Showing the Deaths at various groups of ages in the seven Rural Sanitary Districts in the 14 years, 1881-94.

Rural Sanitary District.	At all ages.	Under 1 year.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
Steypning .. ..	3,622	748	411	176	168	1,029	1,090
Horsham .. ..	3,152	572	286	182	168	873	1,071
Petworth .. ..	2,064	289	140	94	97	610	834
Thakeham .. ..	1,687	240	143	87	85	501	631
East Preston .. ..	1,704	270	155	101	91	486	601
Midhurst .. ..	2,991	481	280	156	165	830	1,079
Westbourne .. ..	1,545	261	130	85	67	406	596
Total .. ..	16,765	2,861	1,545	881	841	4,735	5,902
Per 10,000 .. ..	10,000	1,707	921	525	502	2,824	3,521

## INFANT MORTALITY.

During the year 1894 there were 242 deaths of infants under one year of age, out of a total of 1,522 deaths from all causes ; of these 145 were male and 97 were female.

There were 2,892 births, so that the infant mortality, as measured by the number of deaths under one year of age to every 1,000 children born, was 83·7 against a rate of 86, 87, 112, 84, 77, 77, 97, 113, 106, and 102 in the ten preceding years.

Throughout England and Wales the rate of infant mortality in 1894 was equal to 137 per 1,000, the mean proportion in the ten years having been 147. In large towns the infantile death-rate is very much higher.

In each district the rate of infant mortality during the past five years, was as follows :—

	1890.	1891.	1892.	1893.	1894.	Mean
Steyning . . . .	105 . .	112 . .	131 . .	113 . .	83 . .	108·8
Horsham . . . .	112 . .	85 . .	122 . .	94 . .	82 . .	99·0
Petworth . . . .	63 . .	119 . .	84 . .	68 . .	57 . .	78·2
Thakeham . . . .	57 . .	112 . .	86 . .	87 . .	85 . .	85·4
East Preston . .	88 . .	102 . .	93 . .	88 . .	78 . .	89·8
Midhurst . . . .	86 . .	127 . .	107 . .	71 . .	97 . .	97·6
Westbourne . .	63 . .	87 . .	108 . .	142 . .	75 . .	95·0
Worthing . . . .	135 . .	140 . .	78 . .	145 . .	115 . .	122·6
Littlehampton .	45 . .	107 . .	111 . .	48 . .	81 . .	78·4
Arundel . . . .	228 . .	186 . .	58 . .	115 . .	79 . .	133·2
Horsham . . . .	— . .	— . .	123 . .	136 . .	118 . .	125·7
Mean . . . .	97	113	106	102	84	100·4

It will thus be seen that the rate of infant mortality is much higher in the urban than in the rural districts, but it is not clear why the Arundel rate should be twice as high as that at Littlehampton. The death-rate of male infants is much higher than that of female infants ; it is true that more boys than girls are born, the ratio being 103 male births to 97 female births in the nineteen years, 1876-94, or in the proportion of 106 boys to 100 girls, but this will not account for the great disparity in the death-rates.

Year.	Under 1 year.			1 to 2.			2 to 5.	
	M.	F.		M.	F.		M.	F.
1890 . .	159	97	. .	29	30	. .	27	24
1891 . .	189	132	. .	56	40	. .	49	41
1892 . .	170	130	. .	44	49	. .	37	34
1893 . .	178	130	. .	41	40	. .	45	43
1894 . .	145	97	. .	38	37	. .	22	23
	841	586	. .	208	196	. .	180	165
Rural births	625	421	. .	147	134	. .	125	116
Urban births	216	165	. .	61	62	. .	55	49

Under one year of life there is a great preponderance of male deaths, and a similar excess, but in a much diminished degree, may be noticed up to five years of age, after which period the numbers are more nearly equal.



### ZYMOTIC MORTALITY.

Out of 1,522 deaths from all causes in 1894, 104 were due to this class of disorders, or 0·90 per 1,000 persons living.

In England and Wales the rate from only the seven principal zymotic disorders was equal to 1·76 per 1,000 persons living, against 1·86, 2·22, 2·14, 1·90, 2·00, and 2·47 in the six preceding years.

There were in this district 65 deaths from diseases in 1894, which are notifiable, and 39 deaths in the other class, where the number of cases cannot be obtained.

Notifiable.				Not notifiable.			
Diseases.		Deaths.		Diseases.		Deaths.	
Small-pox	. . .	none		Measles	. . .	14	
Scarlatina	. . .	3		Whooping Cough	. . .	16	
Diphtheria	. . .	41		Diarrhœa & Dysentery	. . .	6	
Membranous Croup	. . .	3		Rheumatic Fever	. . .	3	
Fevers	{ Typhus	. . .	none				
	{ Enteric	. . .	12				
	{ Continued	. . .	none				
	{ Relapsing	. . .	none				
	{ Puerperal	. . .	2				
Cholera	. . .	none					
Erysipelas	. . .	4					
Total		65		Total		39	

There were also 35 deaths from Influenza.

The Infectious Disease (Notification) Act, 1889, came into operation at various periods in the years 1890 and 1891, and now it is adopted throughout the whole area except in the Urban Sanitary District of Horsham, which only joined the combination at the end of the year 1891.

There is no isolation hospital in the district except the infectious wards in each union workhouse. At Petworth there is a cottage which is occasionally used, and at Hangleton there is a hospital belonging to Hove, into which a few cases from this district were admitted previous to Michaelmas, 1893, but not since then.

Table 4 shows the prevalence of various disorders in rural districts over the long period of nineteen years. Deaths from notifiable diseases are to non-notifiable diseases in the proportion of nearly five to seven. Whooping cough heads the list, followed by diphtheria, diarrhœa, enteric fever, measles, and scarlatina. Influenza during the past four years occupies a prominent place, but small-pox and typhus fever are of rare occurrence. About 121 deaths occur each year in this class, of which 51 are notifiable and 70 are non-notifiable.

Table 5 gives the death-rate in the same districts during the same period; the mean annual rate is low and it only amounts to 1·53 per 1,000 for all the group, while for notifiable diseases it is 0·65 per 1,000 and for non-notifiable diseases, 0·88 per 1,000 persons living.

TABLE 4.—Showing the Deaths from Zymotic Diseases in each of the seven Rural Districts in the nineteen years, 1876-94.

Period, 1876-94.	Notifiable.										Non-notifiable.					Total.			
	Small-pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza.	Notifiable.	Non-notifiable.	Total.
					Typhus.	Enteric.	Continued.	Relapsing.	Puerperal.										
Steyning ..	1	51	78	5	8	59	6	—	10	—	21	48	128	163	12	51	239	402	641
Horsham ..	7	24	63	—	2	18	8	—	8	—	12	57	84	62	9	35	142	247	389
Petworth ..	2	9	61	—	—	19	—	—	4	—	6	8	39	18	4	26	101	95	196
Thakeham ..	1	25	43	—	2	19	—	—	6	—	13	9	68	30	5	27	109	139	248
East Preston ..	—	25	45	2	—	38	1	—	2	—	6	18	42	53	2	14	119	129	248
Midhurst ..	10	28	80	2	1	39	2	—	4	—	18	36	71	28	16	56	184	207	391
Westbourne (1881-94)	—	1	45	2	—	22	—	—	1	—	7	15	34	14	5	33	78	101	179
Total ..	21	163	415	11	13	214	17	—	35	—	83	191	466	368	53	242	972	1,320	2,292

TABLE 5.—Showing the Deaths from Zymotic Diseases in the seven Rural Districts in the nineteen years, 1876-94.

Period.	Notifiable.										Non-notifiable.					Total.		Mean annual Death-rate per 100,000 per- sons living.					
	Small-pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric.	FEVERS.			Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza.	Notifiable.		Non-notifi- able.	Total.			
							Continued.	Relapsing.	Puerperal.														
1876-80 ..	6	56	66	—	4	46	10	—	15	—	14	48	124	118	10	—	—	217	300	517	62	86	148
1881-85 ..	7	73	147	—	5	57	5	—	11	—	36	35	100	92	15	—	—	341	242	583	85	60	145
1886-90 ..	2	25	83	—	4	52	2	—	8	—	16	58	136	105	10	22	22	192	331	523	46	80	126
1891 ..	—	2	20	2	—	7	—	—	1	—	3	14	34	13	6	38	38	35	105	140	42	126	168
1892 ..	—	—	33	—	—	3	—	—	—	—	5	9	44	12	5	122	122	41	192	233	49	229	278
1893 ..	6	5	30	6	—	37	—	—	—	—	5	18	19	22	4	34	34	89	97	186	106	115	221
1894 ...	—	2	36	3	—	12	—	—	—	—	4	9	9	6	3	26	26	57	53	110	70	65	135
Total ..	21	163	415	11	13	214	17	—	35	—	83	191	466	368	53	242	242	972	1320	2292	65	88	153



Table 6 should be compared with table 5, as similar facts are here given for the four urban districts which in the previous table were given for the rural districts. The order of frequency is changed; diarrhœa precedes whooping cough, and measles and scarlatina precedes diphtheria. In each table the extraordinary prevalence of enteric fever in 1893 introduces a disturbing element. Taking away from each table the deaths from this cause in 1893, it would appear that enteric fever is more common in the rural than in the urban districts.

The mean annual rate is 1·85 per 1,000; for notifiable diseases it is 0·80 per 1,000, and for non-notifiable diseases it is 1·05 per 1,000 persons living.

The mean annual death-rate from all the causes mentioned in the tables is higher in urban than in rural districts, but this varies much from year to year. In 1876-80, the urban rates were highest, while in 1881-85 the rural rates were in excess of the urban; this was chiefly due to the mortality from diphtheria and whooping cough.

In the urban districts there was no death from typhus fever, and there was only one death from small-pox in the seventeen years 1876-92, but in 1893 it became more prevalent.

The following table shows the order of frequency in urban and rural districts during the years 1876-94:—

Urban.	Rural.
1. Enteric Fever	Whooping Cough
2. Diarrhœa	Diphtheria
3. Whooping Cough	Diarrhœa
4. Measles	Influenza
5. Scarlatina	Enteric Fever
6. Diphtheria	Measles
7. Influenza	Scarlatina
8. Erysipelas	Erysipelas
9. Rheumatic Fever	Rheumatic Fever
10. Puerperal Fever	Puerperal Fever
11. Small-pox	Small-pox

It must be noted, however, that enteric fever, as explained above, occupies an exceptional position.

Table 7 shows the new cases of infectious disease notified in the four years 1891-94, and also the deaths occurring among them. As the Notification Act is not in force in the Horsham Urban Sanitary District the deaths in that area are excluded. Scarlatina is the disease most frequently notified, except in 1893, but the mortality from this cause is very low; diphtheria is less frequent, but the death-rate is much higher.

The case mortality in each of the four years is here given for urban and rural areas:—

Urban.			Rural.		
Cases.	Deaths.	Death-rate per 1,000 cases.	Cases.	Deaths.	Death-rate per 1,000 cases.
1891 .. 133	4	30·1	.. 282	35	124·1
1892 .. 124	10	80·5	.. 415	41	98·8
1893 1,486	182	122·5	.. 741	89	120·1
1894 .. 77	5	64·9	.. 356	57	103·9

Table 8 gives a general summary of the deaths from all causes and from various groups of diseases in the combined district for a period of nineteen years, 1876-94.

TABLE 6.—Showing the Deaths from Zymotic Diseases in four Urban Districts in the nineteen years 1876-94.

Period.	Notifiable.										Non-notifiable.					Total.		Total.	Mean annual Death-rate per 100,000 persons living.			
	Small-pox.	Scarlatina.	Diphtheria.	Membranous Group.	Typhus.	Fevers.				Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea.	Rheumatic Fever.	Influenza.	Notifiable.		Not notifiable.			
						Enteric.	Continued.	Relapsing.	Puerperal.													
1876-80 . .	—	26	10	—	—	7	1	—	4	—	2	15	27	34	3	—	50	79	129	71	113	184
1881-85 . .	—	7	10	—	—	12	3	—	1	—	4	20	14	28	5	—	37	67	104	37	68	105
1886-06 . .	1	24	19	—	—	17	1	—	1	—	5	13	55	36	5	3	68	112	180	61	101	162
1891 . .	—	1	—	—	—	—	—	—	1	—	2	40	12	5	—	10	4	67	71	17	281	298
1892 . .	—	1	5	—	—	3	—	—	—	—	3	3	5	8	2	19	12	37	49	37	113	150
1893 . .	4	2	6	2	—	178	—	—	—	—	3	2	9	25	1	5	195	42	237	592	128	720
1894 . .	—	1	5	—	—	—	—	—	2	—	—	5	7	—	—	9	8	21	29	24	63	87
Total . .	5	62	55	2	—	217	5	—	9	—	19	98	129	136	16	46	374	425	799	80	105	185

TABLE 7.—Showing the New Cases of Infectious Disease notified in the four years, 1891-94.

	Year, 1894.						Year, 1893.		Year, 1892.		Year, 1891.	
	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Cases.	Deaths	Cases.	Deaths	Cases.	Deaths	Cases.	Deaths
Small-pox .. ..	1	—	2	1	4	—	21	6	—	—	1	—
Scarlatina .. ..	60	20	13	18	111	3	337	7	167	1	208	3
Diphtheria .. ..	33	24	68	37	162	39	173	33	189	36	109	20
Membranous Group. .	2	1	1	1	5	3	8	6	3	—	2	2
Enteric Fever .. ..	17	10	15	15	57	12	1,559	212	79	6	43	7
Continued Fever .. ..	—	—	—	—	—	—	—	—	—	—	2	—
Relapsing Fever .. ..	—	—	—	1	1	—	—	—	—	—	—	—
Puerperal Fever .. ..	1	—	3	1	5	1	8	—	2	—	2	2
Erysipelas .. ..	25	25	16	22	88	4	121	7	99	8	48	5
Total .. ..	139	80	118	96	433	62	2,227	271	539	51	415	39
Urban cases .. ..	23	17	19	18	77	5	1,486	182	124	10	133	4
Rural cases .. ..	116	63	99	78	356	57	741	89	415	41	282	35

Not including two deaths in 1892, thirteen in 1893, and three in 1894, in Horsham Urban District.



TABLE 8.—Showing the Deaths and Death-rate per 100,000 persons living in the combined District from all causes and from various causes in the nineteen years, 1876-94.

DEATHS.

DEATH-RATE PER 100,000.

Period.	All Diseases.	Zymotic		Phthisis.	Lung Disease.	Heart Disease.	Population in the middle of each period.	All Diseases.	Zymotic		Phthisis.	Lung Disease.	Heart Disease.
		Notifiable	Non-notifiable.						Notifiable.	Non-notifiable.			
1876-80 ..	6,496	267	379	714	947	549	83,800	1,552	64	990	170	225	131
1881-85 ..	7,195	378	309	691	1,081	655	100,230	1,436	75	61	138	216	131
1886-90 ..	7,550	260	443	765	1,206	772	105,020	1,438	50	84	146	230	147
1891 ..	1,814	39	172	123	346	163	107,266	1,691	36	160	114	322	152
1892 ..	1,936	53	229	135	343	201	116,370	1,663	45	197	116	295	172
1893 ..	1,899	284	139	149	226	160	117,140	1,629	242	111	127	193	137
1894 ..	1,522	65	74	112	218	184	115,280	1,320	56	64	97	189	160
Total ..	28,412	1,346	1,745	2,689	4,367	2,684		1,496	70	90	143	229	140

## SALE OF FOOD AND DRUGS ACTS, 1875 AND 1879.

Summary of the report of the Public Analyst, Otto Hehner, Esq., appointed for the County of West Sussex, upon the articles analysed by him under the above Acts during the year, 1894.

## First Quarter, ending March 31st, 1894.

Article,	Result,
Milk, 26 samples . . . .	Twenty-four genuine, 2 adulterated with 7 and 15 per cent. of water.
Vinegar, 14 samples..	Eleven genuine, 3 adulterated, 1 being watered with 50 per cent. of water, 2 others being bought as malt vinegar contained 75 per cent. of vinegar not made from malt or grain.
Spirits, 14 samples. . . .	Eleven genuine, 3 adulterated with 4, 6, and 12 per cent. of water.
Butter, 14 samples. . . .	All genuine.
Lard, 14 samples . . . .	Six genuine, 8 mixed with from 5 to 15 per cent. of beef stearine.

Total number of samples analysed during the Quarter, 82.  
Adulterated, 16.

## Second Quarter, ending June 30th, 1894.

Butter, 14 samples.. ..	One adulterated with 97 per cent. of magarine.
Cheese, 14 samples.. ..	One adulterated, made from skim milk.
Malt Vinegar, 12 samples	Two adulterated, not malt vinegar.
Brandy, 14 samples ..	Two watered with 2·5 and 5 per cent. of water.
Whisky, 14 samples ..	One watered with 4·2 per cent. of water.
Milk, 1 sample .. ..	Genuine.

Total number of samples analysed during the Quarter, 69. Adulterated, 7.

## Third Quarter, ending September 30th, 1894.

Ground Ginger, 7 samples	All genuine.
Ground Pepper 7 samples	All genuine.
Ground Coffee, 7 samples	All genuine.

Total number of samples analysed during the Quarter, 21. Adulterated, 0.

## Fourth Quarter, ending December 31st, 1894.

Butter, 14 samples... .. All genuine.

Spirits, 13 samples... .. Ten genuine, 3 adulterated with 3, 3, and  
10 per cent. of water respectively.

Total number of samples analysed during the Quarter, 27. Adulterated, 3.

There were sent for analysis during the year 199 samples, and of these 26 were adulterated; 19 convictions were obtained:—Six of lard, 5 of malt vinegar, 4 of whisky, two of milk, 1 of brandy, and 1 of butter.

The total costs incurred under these Acts were:—

	£	s.	d.
Fees for analysis . . . . .	104	9	6
Carriage, postage, &c. . . . .	5	9	8
Expenses incurred in obtaining samples, &c. . . . .	7	19	1
Printing . . . . .		12	6
Total . . . . .	<u>£118</u>	<u>10</u>	<u>9</u>

## METEOROLOGY.

The following tables give the

- a. Amount of Rainfall.
- b. Hours of Bright Sunshine.
- c. Accumulated Heat in Day Degrees.
- d. Earth Temperature.
- e. Climate of Worthing.

## RAINFALL.

The rainfall at different places in the combined district is here contrasted for a term of years:—

Year	WORTHING.				PETWORTH.			
		Inches.	Rainy Days.			Inches.	Rainy Days.	
1881	.. ..	29·97	..	161	..	34·89	..	115
1882	.. ..	32·70	..	191	..	35·69	..	145
1883	.. ..	28·10	..	170	..	35·80	..	142
1884	.. ..	24·75	..	119	..	26·65	..	115
1885	.. ..	29·28	..	150	..	33·30	..	124
1886	.. ..	31·89	..	164	..	38·09	..	147
1887	.. ..	21·30	..	127	..	28·57	..	103
1888	.. ..	25·73	..	175	..	35·38	..	116
1889	.. ..	23·10	..	159	..	28·35	..	141
1890	.. ..	22·74	..	149	..	29·30	..	139



Year.	WORTHING.			PETWORTH.			WESTBOURNE.		
	Author.			Rev. C. Holland, M.A.			Rev. L. B. Birkett, M.A.		
	Inches.	Rainy Days.		Inches.	Rainy Days.		Inches.	Rainy Days.	
1891	29·86	172	.	42·15	164	..	35·94	198	
1892	23·73	141	..	31·02	135	..	26·95	155	
1893	25·12	142	..	28·56	129	..	27·75	158	
1894	35·71	184	..	40·71	173	..	39·04	192	

## HORSHAM.

H. Padwick, Esq., J.P.

Year.		Inches.		Rainy Days.
1891	..	34·84	..	178
1892	..	27·53	..	161
1893	..	25·06	..	156
1894	..	42·18	..	189

The weather in January was bitterly cold until the 9th, when it became milder, with frequent falls of rain. February was mild and wet for the first fortnight, followed by a cold period from the 13th to the 23rd, after which time it became milder. March was mild, with frequent rain for the first fortnight, followed by exceptionally bright and warm weather for the rest of the month. April was a fine, spring month. May dull, cold and wet. June cold and wet until the 21st, when it became warm, dry, and genial. July the wettest month of the year; it was at first bright and warm, wet and gloomy from the 8th to the 24th, then finer up to the end of the month. August was very unsettled, cold and wet, and similar weather was experienced in September, but there was less rain. October was very wet, but the night temperatures were rather above the average, though the days were cool. November was warmer than usual, but it was very wet for the first half of the month, and there were severe gales from the S.W. between the 13th and 15th and many shipwrecks. December was mild, but dull and unsettled.

The rainfall along the coast during the year was much in excess of the average, and presented a marked contrast to 1893, which was remarkable for very dry, hot weather from March to June, and also in August.

The amount of rainfall in each month of 1893 and 1894 is given in the separate report for each district in which the observations were recorded.

The amount of bright sunshine recorded in 1894 was much above the average in January, February, and March, but below the average in April, May, June, July, and August. In September and October the deficiency was still more marked, but in November the amount much exceeded the average, but in December there was again a deficiency.

The first four months of the year were very genial and bright, and vegetation was in a very advanced state, so that there was a rare promise of a prosperous year for agriculture.

May, however, was dull, cold and ungenial; on the early mornings of the 21st and 22nd sharp frosts did a great deal of harm; this was followed by cold, dull and wet weather for the first three weeks of June.

July, as is very often the case, was wet and gloomy, and similar weather prevailed in August and September.

Harvest work of all kinds was much delayed and interfered with, the crops were deficient in quantity and quality and fruit was very scarce and of poor quality.

The year, though a very healthy one for man, was a very destructive one for agriculture.

### HOURS OF BRIGHT SUNSHINE.

		WESTBOURNE.				BRIGHTON.				Hours of
		Rev. L. B. Birkett, M.A.		Dr. Newsholme.		Sunless				Possible
		Hours.	Sunless Days.	Hours.		Days.				Sunshine.
January	..	86·3	.. 9	..	78·73	..	9	..	260	
February	..	96·4	.. 10	..	97·23	..	9	..	276	
March	.	219·1	.. 2	..	202·90	..	1	..	364	
April	.	188·2	.. 1	..	175·96	..	3	..	410	
May	..	223·3	.. 1	.	220·28	..	0	..	475	
June	..	177·3	.. 3	..	183·39	..	2	..	486	
July	..	192·3	.. 3	..	201·51	..	2	..	487	
August	..	162·5	.. 1	..	159·96	..	1	..	443	
September	..	140·2	.. 6	..	146·05	..	5	..	373	
October	..	96·4	.. 5	..	92·54	..	5	..	327	
November	..	91·1	.. 10	..	95·16	..	8	..	264	
December	..	67·8	.. 14	..	63·06	..	13	..	241	
Year	..	1740·9	65		1716·79		58		4406	

	Westbourne.	Brighton.	Greenwich.	South of England
	Hours.	Hours.	Hours.	Hours.
1890 .. ..	1,773.8	1,708.8	1,255.0	1,491.0
1891 .. ..	1,682.8	1,717.6	1,231.0	1,563.0
1892 .. ..	1,859.8	1,756.6	1,277.6	1,684.0
1893 .. ..	2,070.0	1,971.7	1,454.0	1,875.0
1894 .. ..	1,740.9	1,716.8	1,051.3	1,579.0
Mean ..	1,825.4	1,774.3	1,253.8	1,638.4

The observations at Westbourne are taken with a Jordan Photographic recorder; at the other stations the Campbell-Stokes recorder is used.

In Table 9, the hours of bright sunshine are given for a period of ten years and also the percentage of possible duration. Clear, bright weather does not, however, always mean warm weather, and Table 10 has, therefore, been constructed so as to show the amount of heat above and below a certain fixed value which has been experienced during the past ten years. In this Table of Accumulated Heat the value is given in day degrees.

TABLE 9.—BRIGHT SUNSHINE.

YEAR.	Number of Hours.				Percentages of possible duration.			
	Jan. 1 to Mar. 31.	Jan. 1 to June 30.	Jan. 1 to Sept. 30.	Jan. 1 to Dec. 31.	Jan. 1 to Mar. 31.	Jan. 1 to June 30.	Jan. 1 to Sept. 30.	Jan. 1 to Dec. 31.
1885 ..	187	771	1,313	1,490	21	34	37	34
1886 ..	208	814	1,337	1,528	20	32	36	34
1887 ..	243	836	1,468	1,684	28	38	41	38
1888 ..	162	615	1,044	1,240	18	28	29	28
1889 ..	187	665	1,141	1,293	21	29	32	30
1890 ..	222	753	1,265	1,491	24	34	35	34
1891 ..	281	841	1,336	1,563	31	35	37	36
1892 ..	267	955	1,477	1,684	25	41	42	38
1893 ..	308	1,047	1,635	1,875	34	46	46	43
1894 ..	354	901	1,357	1,579	32	37	37	34
Mean ..	241.9	819.8	1,337.3	1,542.7	25.4	35.4	37.2	34.9



TABLE 10.—ACCUMULATED HEAT.

Year.	Day degrees above 42° F.				Day degrees below 42° F.			
	Jan. 1 to Mar. 31.	Jan. 1 to June 30.	Jan. 1 to Sept. 30.	Jan. 1 to Dec. 31.	Jan. 1 to Mar. 31.	Jan. 1 to June 30.	Jan. 1 to Sept. 30.	Jan. 1 to Dec. 31.
1885 ..	202	1,133	2,694	3,055	345	402	405	573
1886 ..	107	1,034	2,748	3,348	555	590	590	760
1887 ..	179	1,162	2,729	3,033	453	524	524	836
1888 ..	83	941	2,363	2,876	517	577	577	701
1889 ..	149	1,300	2,843	3,277	427	448	448	624
1890 ..	254	1,227	2,802	3,285	271	305	305	758
1891 ..	155	1,128	2,658	3,144	515	565	565	721
1892 ..	156	1,161	2,685	3,053	490	554	554	759
1893 ..	302	1,579	3,327	3,799	353	373	373	559
1894 ..	298	1,282	2,822	3,403	300	303	303	388
Mean ..	188.5	1,194.7	2,767.1	3,227.3	422.6	464.1	464.4	667.9

TABLE 11.—CLIMATE OF WORTHING.

MONTH.	TEMPERATURE.								Amount of Cloud.	RAIN.	
	MEANS.					EXTREMES.		Amount.  inches.		No. of Days.	
	9 a.m.	Min.	Max.	Range.	Mean.	Min.	Max.				
	deg.	deg.	deg.	deg.	deg.	deg.	deg.				
January . . . . .	38.4	34.8	42.6	7.8	38.7	12.9	48.5	6.3	4.71	21	
February . . . . .	41.0	36.7	45.8	9.1	41.2	26.1	50.9	6.7	2.33	15	
March . . . . .	46.5	38.6	51.6	13.0	45.1	31.4	60.4	6.0	1.24	12	
April . . . . .	52.2	48.7	56.9	8.2	52.8	39.8	69.7	6.7	2.78	14	
May . . . . .	52.8	43.7	56.4	12.7	50.0	34.1	71.3	6.4	1.39	13	
June . . . . .	54.6	51.3	66.5	15.2	58.9	44.9	80.2	7.5	1.86	12	
July . . . . .	62.7	55.8	66.1	10.3	60.9	50.1	76.2	6.6	5.49	17	
August . . . . .	61.4	55.0	65.5	10.5	60.2	43.6	71.2	7.0	2.32	19	
September . . . . .	56.8	49.8	63.1	13.3	56.4	39.9	70.9	6.2	2.89	10	
October . . . . .	51.9	46.9	57.0	10.1	51.9	36.0	63.8	6.7	4.35	20	
November . . . . .	48.5	43.7	51.0	7.3	47.3	36.9	58.3	6.7	4.24	14	
December . . . . .	42.0	37.6	47.2	9.6	42.4	28.2	52.3	6.7	2.11	17	

Year 1894 . . . . .	50.7	45.2	55.8	10.6	50.2	12.9	80.2	6.6	35.71	184
” 1893 . . . . .	52.3	44.0	57.7	13.7	50.9	18.2	84.7	5.5	23.76	137
” 1892 . . . . .	49.1	41.8	54.5	12.7	48.2	20.2	76.0	5.8	23.73	141
” 1891 . . . . .	49.4	42.4	54.8	12.2	48.4	16.5	77.0	5.9	29.86	172
” 1890 . . . . .	49.4	42.2	54.6	12.4	48.4	14.9	78.0	6.2	22.84	149
” 1889 . . . . .	49.5	42.7	54.8	12.1	48.8	21.9	81.5	6.4	23.92	159
” 1888 . . . . .	48.0	42.4	53.3	10.9	47.8	20.2	78.8	6.4	25.88	181
” 1887 . . . . .	48.4	41.6	54.1	12.5	47.9	17.4	82.0	5.7	21.28	137
” 1886 . . . . .	50.0	44.0	55.2	11.2	49.6	23.2	78.0	5.8	31.89	164
” 1885 . . . . .	50.0	43.7	55.1	11.4	49.4	25.2	81.7	5.7	28.09	156
” 1884 . . . . .	52.0	45.6	56.8	11.2	51.2	27.0	83.3	5.8	23.51	126
” 1883 . . . . .	50.7	43.9	55.9	12.0	49.9	23.3	75.7	5.7	26.05	174
” 1882 . . . . .	51.6	45.1	56.5	11.4	50.8	26.6	81.0	5.8	32.35	180
” 1881 . . . . .	50.3	43.4	55.0	11.6	49.2	13.5	82.0	5.6	29.60	142



## THE TEMPERATURE OF THE SOIL.

The temperature of the soil at 9 a.m., one foot below the surface of the ground at Worthing, was taken daily up to August, 1894, by the late W. J. Harris, Esq., F.R. Met. Soc., and since November, 1894, by G. B. Collet, Esq., who has kindly given me the use of his tables; the results for each month of 1894, and also for a term of years, are here given :—

	1894.			1887.	1888.	1889.	1890.	1891.	1892.	1893.
	Mean deg.	Max. deg.	Min. deg.	Mean deg.	Mean deg.	Mean deg.	Mean deg.	Mean deg.	Mean deg.	Mean deg.
Jan.	39·5	43·1	34·9	37·3	38·3	39·3	42·7	35·1	37·5	35·7
Feb.	42·6	45·2	37·0	39·2	37·2	38·7	40·1	39·3	40·4	42·0
March	44·2	49·3	41·4	40·3	39·0	40·6	42·6	40·6	39·6	44·7
April	52·2	55·7	49·7	45·2	44·0	47·2	47·3	45·1	47·1	51·8
May	54·2	58·0	52·0	55·1	52·2	56·6	55·8	52·6	53·1	58·5
June	58·1	63·6	55·1	59·4	58·0	62·5	58·6	56·9	59·8	63·7
July	66·2	65·9	60·7	64·4	60·1	62·7	60·3	62·1	61·6	65·0
Aug.	61·8	63·6	58·9	63·1	60·9	61·0	61·2	60·6	62·7	—
Sept.	58·5	63·2	54·6	57·2	58·4	58·6	59·9	59·7	58·6	—
Oct.	52·9	56·4	49·0	49·9	49·8	51·5	52·3	53·8	48·7	—
Nov.	49·1	54·1	44·0	44·4	49·0	47·2	49·9	48·8	47·9	45·2
Dec.	43·2	46·8	39·3	40·2	44·2	40·5	36·0	42·6	40·1	42·3
Year	51·8	65·9	39·3	49·3	49·3	50·5	50·3	48·9	49·8	—

	Mean degrees.			Maximum degrees.			Minimum degrees.		
In 1882	..	..	..	51·8	..	..	66·5	..	..
In 1883	..	..	..	51·4	..	..	67·2	..	..
In 1884	..	..	..	52·6	..	..	71·0	..	..
In 1885	..	..	..	50·8	..	..	67·2	..	..
In 1886	..	..	..	50·6	..	..	67·2	..	..
In 1887	..	..	..	49·3	..	..	67·2	..	..
In 1888	..	..	..	49·3	..	..	64·2	..	..
In 1889	..	..	..	50·5	..	..	65·9	..	..
In 1890	..	..	..	50·3	..	..	63·9	..	..
In 1891	..	..	..	48·9	..	..	65·4	..	..
In 1892	..	..	..	49·8	..	..	65·3	..	..
In 1893	..	..	..	—	..	..	70·5	..	..
In 1894	..	..	..	51·8	..	..	65·9	..	..

## ACCIDENTS.

In the nineteen years 1876-94, there were 662 deaths caused by some form of accident; of these 506 were amongst males, and 156 amongst female, or in the proportion of 3.2 male to 1.0 female. This arises from the nature of the occupation to which men are exposed. The number of accidents happening to either sex each year varies but slightly, and the proportion in each district does not show any marked difference.

The death-rate is equal to 352 per million of the population against a rate of 557 in England and Wales in the ten years 1884-93.

Tables 12 and 13 give some interesting details, as to the frequency of accidents in each district and also as to the periods of life when they most frequently occur.

## SUICIDES.

Two hundred and seventeen persons committed suicide in the nineteen years 1876-94, and of these 178 were males and 39 were females, or in the proportion of 4.5 male to 1.0 female. The death-rate is equal to 114 per million of the population against a rate in England and Wales of 87 in the three years, 1891-93.

Each district contributes in about similar proportions and there is no special incidence in any particular area. The numbers vary but slightly from year to year, but they are much in excess of the general average throughout the country.

This mode of death is very rare in youth, but it is now and then met with in persons from 15 to 25 years of age; it is uncommon up to 40 years of age when it becomes more frequent, and it reaches its highest point at the ages of 60 to 80 years.

Tables 14 and 15 gives some interesting details concerning the incidence of suicide in each sanitary district, and as to the periods of life when it most frequently occurs.

In 1893 the deaths in England and Wales from accidents were 12,083 among males and 5,041 among females. The deaths from suicide were 1,940 among males, and 659 among females. The deaths from these two causes were equal to a rate of 644 per million living, against a rate of 466 in this district.

The deaths from accidents might be expected to be lower in an agricultural district than in the whole country which includes so many large towns, but it is not clear why the deaths from suicide should be so high in this area.

TABLE 12.—Showing the Deaths from Accidents in each Sanitary District in the nineteen years, 1876-94.

PERIOD.	Steyning R.S.D.	Horsham R.S.D.	Petworth R.S.D.	Thakeham R.S.D.	East Preston R.S.D.	Midhurst R.S.D.	Westbourne R.S.D.	Worthing U.S.D.	Littlehampton U.S.D.	Arundel U.S.D.	Horsham U.S.D.	TOTAL.	TOTAL BOTH SEXES.
1876-80	M. 28 F. 4	M. 24 F. 7	M. 17 F. 4	M. 9 F. 4	M. 15 F. 3	M. 11 F. 4	M. 7 F. 5	M. 10 F. 2	M. 8 F. 2	M. — F. —	M. — F. —	M. 122 F. 30	152
1881-85	M. 21 F. 5	M. 23 F. 8	M. 10 F. 6	M. 20 F. 3	M. 13 F. 3	M. 16 F. 7	M. 8 F. 3	M. 13 F. 4	M. 5 F. —	M. — F. —	M. — F. —	M. 128 F. 41	169
1886-90	M. 22 F. 8	M. 17 F. 6	M. 13 F. 3	M. 17 F. 2	M. 13 F. 3	M. 15 F. 4	M. 8 F. 3	M. 9 F. 5	M. 4 F. 3	M. 2 F. 2	M. — F. —	M. 120 F. 39	159
1891	M. 10 F. 3	M. 3 F. 1	M. 4 F. 3	M. 2 F. —	M. 6 F. —	M. 3 F. —	M. 4 F. —	M. 2 F. 3	M. 4 F. —	M. — F. 1	M. — F. —	M. 38 F. 11	49
1892	M. 9 F. 2	M. 7 F. 1	M. 1 F. 3	M. 4 F. 1	M. 1 F. 1	M. 7 F. —	M. 1 F. —	M. 3 F. 1	M. — F. 1	M. — F. —	M. — F. —	M. 33 F. 10	43
1893	M. 3 F. 1	M. 3 F. 2	M. 4 F. 1	M. 2 F. 2	M. 7 F. 1	M. 2 F. 3	M. 1 F. 2	M. 4 F. 3	M. 1 F. —	M. — F. —	M. 1 F. —	M. 28 F. 15	43
1894	M. 4 F. 1	M. 4 F. 4	M. — F. —	M. 2 F. —	M. 2 F. —	M. 4 F. 2	M. 1 F. —	M. 14 F. 1	M. 3 F. —	M. 2 F. 1	M. 1 F. 2	M. 37 F. 10	47
	97 24	81 29	49 20	56 12	57 11	58 20	22 10	55 19	25 6	4 3	2 2	506 156	662
Total	121	110	69	68	68	78	32	74	31	7	4	662	



TABLE 13.—Showing the Deaths and Death-rate from Accidents in the Combined District in the nineteen years, 1876-94.

PERIOD.	Under 1 year.		1 to 5.		5 to 15.		15 to 25.		25 to 40.		40 to 60.		60 to 80.		80 and up- wards.		Total.		Total both sexes.	Annual death-rate per 100,000 persons living.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
1876-80 ..	10	8	11	2	12	1	13	1	23	3	27	5	22	8	4	2	122	30	152	36.2
1881-85 ..	6	7	20	10	15	3	18	1	20	1	26	4	16	10	7	5	128	41	169	35.0
1886-90 ..	12	5	10	13	14	7	22	—	19	3	23	4	15	6	5	1	120	39	159	30.6
1891 ..	3	3	4	1	7	1	2	—	5	1	12	2	5	1	—	2	38	11	49	45.9
1892 ..	2	2	3	—	7	—	8	1	4	1	4	—	5	3	—	3	33	10	43	36.9
1893 ..	—	2	—	2	2	—	4	1	4	1	11	4	4	5	3	—	28	15	43	36.7
1894 ..	1	2	1	—	2	1	6	—	16	1	6	2	5	2	—	2	37	10	47	40.7
	34	29	49	28	59	13	73	4	91	11	109	21	72	35	19	15	506	156	662	35.2
Total ..	63		77		72		77		102		130		107		34		662			

TABLE 14.—Showing the Deaths from Suicide in each Sanitary District in the nineteen years, 1876-94.

Period.	Steyning R.S.D.	Horsham R.S.D.	Petworth R.S.D.	Thakeham R.S.D.	East Preston R.S.D.	Midhurst R.S.D.	Westbourne R.S.D.	Worthing U.S.D.	Littlehampton U.S.D.	Arundel U.S.D.	Horsham U.S.D.	Total.	Total Both Sexes.
1876-80 ..	M. F. 10 1	M. F. 6 1	M. F. 2 —	M. F. 3 1	M. F. 1 2	M. F. 5 2	M. F. 1 1	M. F. 5 1	M. F. 1 —	M. F. — —	M. F. — —	M. F. 33 8	41
1881-85 ..	M. F. 8 3	M. F. 5 2	M. F. 8 1	M. F. 7 —	M. F. 4 3	M. F. 3 3	M. F. 1 1	M. F. 10 2	M. F. 4 —	M. F. — —	M. F. — —	M. F. 50 15	65
1886-90 ..	M. F. 10 —	M. F. 12 1	M. F. 4 2	M. F. 4 —	M. F. 7 2	M. F. 6 —	M. F. 4 —	M. F. 3 3	M. F. — —	M. F. 3 —	M. F. — —	M. F. 53 8	61
1891 ..	M. F. 2 —	M. F. 1 —	M. F. 1 —	M. F. 1 —	M. F. — —	M. F. 1 1	M. F. — —	M. F. 4 —	M. F. — —	M. F. — —	M. F. — 1	M. F. 10 1	11
1892 ..	M. F. 2 —	M. F. — 1	M. F. — —	M. F. 2 —	M. F. 1 —	M. F. — —	M. F. — —	M. F. 3 —	M. F. — —	M. F. — —	M. F. — 1	M. F. 8 2	10
1893 ..	M. F. 1 —	M. F. 2 1	M. F. — —	M. F. 1 1	M. F. 2 —	M. F. — —	M. F. — —	M. F. 2 —	M. F. 1 —	M. F. — —	M. F. 1 1	M. F. 10 3	13
1894 ..	M. F. 5 —	M. F. 1 —	M. F. 1 —	M. F. — —	M. F. 5 —	M. F. — 2	M. F. — —	M. F. — —	M. F. 1 —	M. F. 1 —	M. F. — —	M. F. 14 2	16
	38 4	27 6	16 3	18 2	20 7	15 8	5 1	27 6	7 —	4 —	1 2	178 39	217
Total ..	42	33	19	20	27	23	6	33	7	4	3	217	

TABLE 15.—Showing the Deaths and Death-rate from Suicide in the nineteen years, 1876-94.

Period.	Under 1 year.	1 to 5.	5 to 15.	15 to 25.	25 to 40.	40 to 60.	60 to 80.	80 and up- wards.	Total.	Total both sexes.	Annual death-rate per 100,000 persons living.
	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.		
1876-80 ..	— —	— —	— —	4 —	6 2	7 2	16 4	— —	33 8	41	9·8
1881-85 ..	— —	— —	1 —	5 1	10 3	20 4	15 5	— 1	50 15	65	13·0
1886-90 ..	— —	— —	— —	4 1	6 1	20 4	19 2	4 —	53 8	61	11·7
1891 ..	— —	— —	— —	— —	1 1	5 —	4 —	— —	10 1	11	10·3
1892 ..	— —	— —	— —	1 1	3 —	2 1	2 —	— —	8 2	10	8·6
1893 ..	— —	— —	— —	— —	2 1	7 1	1 1	— —	10 3	13	11·1
1894 ..	— —	— —	— —	1 —	1 —	10 —	2 2	— —	14 2	16	13·9
	— —	— —	1 —	15 3	29 8	71 12	59 14	4 1	178 39	217	11·4
	— —	— —	1	18	37	83	73	5	217		



(A)—Table of DEATHS during the Year 1894 in the Combined We

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.										
	At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and up-wards.		1	2	3
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	Small Pox.	Scarlatina.	Diphtheria.
Steyning R.S.D. ... ..	196	40	15	5	6	66	64	Under 5 ..... 5 upwards.		1 ..... 1	
Horsham R.S.D. ... ..	216	34	10	15	17	62	78	Under 5 ..... 5 upwards.			
Petworth R.S.D. ... ..	116	13	6	6	2	29	60	Under 5 ..... 5 upwards.			
Thakeham R.S.D. ... ..	136	16	7	13	8	35	57	Under 5 ..... 5 upwards.			
East Preston R.S.D. ... ..	135	22	19	9	7	35	43	Under 5 ..... 5 upwards.			
Midhurst R.S.D. ... ..	197	36	15	10	16	46	74	Under 5 ..... 5 upwards.		1	
Westbourne R.S.D. ... ..	106	15	10	6	3	27	45	Under 5 ..... 5 upwards.			
Worthing U.S.D. ... ..	219	37	22	8	9	71	72	Under 5 ..... 5 upwards.			
Littlehampton U.S.D....	66	8	10	1	1	28	18	Under 5 ..... 5 upwards.			
Arundel U.S.D....	30	6	1	3	—	8	12	Under 5 ..... 5 upwards.		1	
Horsham U.S.D. ... ..	100	14	7	3	2	37	37	Under 5 ..... 5 upwards.			
TOTALS.....	1517	241	122	79	71	444	560	Under 5 ..... 5 upwards.		2 ..... 2	11 ..... 3

The subjoined numbers have also to be taken in

Deaths occurring outside the District among persons belonging thereto.....	34	2	1	—	2	15	14	Under 5 ..... 5 upwards.			
Deaths occurring within the District among persons not belonging thereto...	64	2	4	1	5	34	18	Under 5 ..... 5 upwards.		1	

Sussex District, classified according to Diseases, Ages, and Localities.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN  
UNDER FIVE YEARS OF AGE.

4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Membranous Croup.	FEVERS.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever.	Ague.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All Other Diseases.	TOTAL.
	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.													
							1	4		3				7	1	1	36	55
		4					2				1		16	16	27	9	63	141
									1					16			26	44
							1						17	20	23	9	98	172
									1					3			14	19
									1				3	17	14	1	56	97
									1		1			11			9	23
		2											12	12	25	2	54	113
									3	3				10	1	1	23	41
		1											9	14	7	7	54	94
								4	2					9	1	1	33	51
1		6						1					14	11	19	8	80	146
2														4		1	15	25
											1		11	16	8		41	81
								1	6					12	2	1	37	59
					1								14	14	31	14	84	160
								3	1					5		1	7	18
								1					7	4	7	4	25	48
																	6	7
													1	4	5	3	10	23
														7			13	21
					1								8	5	13	3	48	79
2							1	12	15	6	1			84	5	6	219	363
1		13			2		3	2	1		2		112	133	179	60	541	1154

account in judging of the above records of mortality.

														1			2	3
													2	4	4		21	31
														1			4	6
		1											6	4	8	14	25	58



## (B)—TABLE OF POPULATION, BIRTHS, AND OF NEW CASES

Officer of Health, during the year 1894, in the combined WEST

Names of Localities adopted for the purpose of these Statistics ; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICKNESS COMING TO THE KNOWLEDGE OF THE					
	Census 1891.	Esti- mated to mid- dle of 1894.			1	2	3	4	5	6
					Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Fever.
(a)	(b)	(c)	(d)	(e)						
Steyning R.S.D. ... ..	16,824	17,050	480	Under 5 ..... 5 upwards.	..... 1	7 35	3 19	1	.....	.....
Horsham R.S.D. ... ..	16,798	17,160	416	Under 5 ..... 5 upwards.	..... 1	2 12	4 9	.....	.....	.....
Petworth R.S.D. ... ..	9,431	9,400	227	Under 5 ..... 5 upwards.	.....	1 5	4 24	.....	.....	.....
Thakeham R.S.D. ... ..	8,049	8,000	188	Under 5 ..... 5 upwards.	.....	..... 9	3 22	.....	.....	.....
East Preston R.S.D. ... ..	8,692	8,980	269	Under 5 ..... 5 upwards.	.....	1 7	1 8	1	.....	.....
Midhurst R.S.D. ... ..	14,236	14,310	371	Under 5 ..... 5 upwards.	.....	..... 9	2 13	.....	.....	.....
Westbourne R.S.D. ... ..	7,084	7,030	199	Under 5 ..... 5 upwards.	.....	1 4	3 33	2	.....	.....
Worthing U.S.D. ... ..	16,606	17,650	339	Under 5 ..... 5 upwards.	..... 2	2 4	3 9	.....	.....	.....
Littlehampton U.S.D....	4,452	4,600	98	Under 5 ..... 5 upwards.	.....	1 4	1 1	1	.....	.....
Arundel U.S.D. ... ..	2,644	2,640	76	Under 5 ..... 5 upwards.	.....	1 6	.....	.....	.....	.....
Horsham U.S.D. ... ..	8,087	8,460	229	Under 5 ..... 5 upwards.	.....	..... No	..... cases	..... are	..... noti	.....
TOTALS .....	112903	115280	2,892	Under 5 ..... 5 upwards.	..... 4	16 95	24 138	5	.....	.....



OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical  
SUSSEX District; classified according to DISEASES, AGES, and LOCALITIES.

[illegible]

